

THE
RAILWAY GAZETTE

A Journal of Management, Engineering and Operation

INCORPORATING

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The Railway Times • Herapaths
Railway Journal

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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list, and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays 9.30 a.m. till 5.30 p.m.

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

British Railways' Post-War Aims

IT is increasingly clear that the termination of the war will bring no relaxation in the efforts that will be called for from the main-line railway companies. Sir William Wood, President of the London Midland & Scottish Railway, has pointed out recently that they will then have to face a different but still formidable set of problems. With the coming of peace, the railways will be required to provide the means which will enable the public to take well-earned and often long deferred holidays, and at the same time play their part to the full in restoring and expanding the peacetime productive capacity of the nation. Simultaneously the railways hope to be making good the ravages of war, and proceeding with schemes of rehabilitation and improvement. Necessarily this will be a gradual process, as much of the rolling stock has gone elsewhere, or has been damaged by abnormal use. Moreover, the construction of passenger vehicles has been suspended almost entirely since 1939. The railways' progress in these directions must depend very largely on a general understanding of the basic needs which will enable their vast organisations to function properly. The most important of these needs are stable conditions, which can be secured only by equality of treatment of the railways and other forms of transport.

L.M.S.R. Dividend

As was recorded in our last week's issue, the first of the main-line railway companies to announce its 1944 results was the London Midland & Scottish Railway. At £15,679,000 the net revenue for 1944 showed the insignificant decline of £7,000 as compared with the corresponding figure for the previous year. Once more the directors have placed £400,000 to reserve for wartime contingencies and are paying 2½ per cent., less tax, on the ordinary stock. This payment on the ordinary is in accord with general expectations, and the amount carried forward is £87,000, which compares with £72,000 brought in. The dividend for 1944 is covered by earnings of 3.3 per cent. The contingency fund, to which £400,000 has been placed for a number of years, totalled £2,082,000 at the end of 1943. At the annual meeting last year Lord Royden, the Chairman, explained that uncertainties as to the allowances which might be made in respect of abnormal wear and tear, had been among the chief considerations—the cost of damage caused by enemy action was another—which had actuated the directors in continuing to build up the contingency fund. When the position became clearer, they would take stock of their reserves, and if those to meet wartime contingencies were in excess of those which materialised, a return would be made to net revenue.

Mr. P. F. Hodgson

Mr. P. F. Hodgson, whose death we recorded briefly last week, had been so long retired from active signalling work that not many now would remember the part he took in the well-known undertaking of Saxby & Farmer Limited, of which his father, Charles Hodgson, was for some time the head. The latter's name is still thought of in connection with a number of devices which found considerable favour in many parts of the world when the use of interlocking and block signalling was spreading rapidly and was being developed energetically by various inventors. Mr. P. F. Hodgson was for a time Signal Engineer of the Grand Trunk Railway of Canada, on which the early equipment installed was based, as was natural, entirely on British ideas, although later American methods superseded them. During his years with Saxby & Farmer, that firm carried out a large amount of work, not only in this country, but in India and elsewhere, much of it of a special kind; and the name of his family remains inseparably associated with the building up of the British signalling system and the high credit so widely enjoyed by the signalling industry of this country. Mr. Hodgson mixed little at any time, we think, in engineering assemblies, but he was seen at the summer meeting of the Institution of Railway Signal Engineers at Cardiff in 1934, and he retained his membership in that body until his death. A biography of Mr. Hodgson appears on another page.

P.R.Os. and the Constitution

That unfortunate race of hybrids, the Government Department Public Relations Officers, has achieved further notoriety in the House of Commons. Civil Servants neither by training nor establishment, they had their beginnings before the war, but since September, 1939, they have multiplied exceedingly, until now they are almost as inevitable—though often more numerous—a feature of a Government Department as the Permanent Secretary. Unloved alike by the permanent officials, the press, and the public, they provide an illustration of expansion in adversity, which many think worthy of a better cause. Vigilant

members of the House of Commons regularly elicit their numbers and the cost of their remuneration, and Sir Herbert Williams, ever a trenchant critic, has asked if the expenditure of £750,000 on "those unnecessary people" was not "very undesirable." Recently, members have taken exception to P.R.Os. writing to the press to answer points concerning their Ministries. Members consider as their own constitutional right the putting of questions to Ministers concerning their departments. They do not take kindly to having their fun at question-time short-circuited by a P.R.O., who, *ex-officio*, by tradition of the House, is immune from personal criticism. That tradition grew up on the basis that a civil servant kept out of public controversy. The idea seems to be growing that if P.R.Os. are not civil servants, and the relations they foster are not good, they must be just another bureaucratic excrescence on the body politic.

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Overseas Railway Traffics

The published accounts of the Buenos Ayres Great Southern and Buenos Ayres Western Railways for the year ended June 30, 1944, show that notwithstanding the substantial increases in gross receipts caused by internal prosperity and some increase in tariffs the financial position of the two companies was not really improved during that period. In these reports the operating figures in sterling are based on the par value of the peso, from which exchange differences are deducted so as to arrive at the net result. Net operating receipts on the Great Southern were £453,529 lower, mainly because of a further rise of £1,490,575 in fuel costs; exchange differences were reduced from £967,372 to £778,813, but the net debit on the whole year rose from £273,912 to £630,553. On the Western there was an improvement in net operating receipts of £46,145, and exchange differences were reduced from £266,830 to £234,635; the final result for the year was a debit of £70,240, against £85,892 for the previous twelve months.

	No. of week	Weekly traffic £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific*...	31st	162,800	+ 29,133	4,258,067	+ 761,734
Buenos Ayres Great Southern*	31st	328,867	+ 83,333	6,621,333	+ 610,400
Buenos Ayres Western*	31st	85,733	+ 13,933	2,320,467	+ 435,067
Central Argentine*	31st	199,993	+ 11,450	5,928,047	+ 816,767
Canadian Pacific ...	4th	1,845,000	+ 162,600	4,818,000	+ 30,800

* Pesos converted at 15 to £

Gross earnings of the Canadian Pacific Railway for the year 1944 were some £63,774,200, an increase of £4,352,600 on 1943. The net earning of £8,632,000 are £1,210,400 down.

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Belfast & County Down Railway

The report and accounts for the year 1944 are submitted in a modified form as prescribed by the Railways (Annual Accounts and Returns) (Northern Ireland) Order, 1945, and detailed operating figures accordingly are not made public. Some comparative results may be summarised as follow:—

	1943	1944
Net receipts from businesses ...	£ 55,861	£ 67,505
Miscellaneous receipts, net...	13,081	9,750
Total net income ...	68,942	77,255

Costs both of wages and supplies continued to increase. In consequence of the accident on the Bangor branch no further arrears of dividend are being paid on the 5 per cent. and 4 per cent. preference stocks, although the two half-yearly distributions on the 4½ per cent. "A" preference stock are being made. That accident has necessitated the appropriation of an additional £18,000 to the reserve for contingencies, bringing it up to a total of £44,000. During the year 3 miles 23 chains of line have been completely renewed, and 3¼ miles of line re-sleepered. A new 4-4-2 type tank locomotive for general use has been received as a replacement of the diesel engine No. 28 which was not suitable for traffic purposes on the Ardglass branch. As from August 1, 1944, the management of the company has been vested in a Committee of Management consisting of Traffic Manager, Secretary & Accountant, Civil Engineer & Locomotive Engineer. Also, the General Manager of the Great Northern Railway (Ireland) has been appointed to act in an advisory and consultative capacity to the County Down directors and management committee. There is now very much closer co-operation between departments on the County Down and also between the traffic departments of the two companies.

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German Ambulance Trains for the Russians

During the war in 1877 between Russia and Turkey, the Berlin Central Committee of the International Association for the Relief of Sick & Wounded Soldiers in the Field caused two complete ambulance trains, for the Russian Army in the Bulgarian campaign, to be constructed at the chief carriage factory of the

Posen Railway, at Guben. In view of current developments, this vastly different alignment of the Powers is not without interest, and on page 155 we reproduce two interior views of one of these trains. Each train consisted of 25 carriages. The first carriage was for the accommodation of two surgeons, each of whom had a comfortable couch on which to sleep, a cupboard, writing-desk, lavatory, and other conveniences; the hind part of this carriage was occupied by assistants. The carriages "devoted to provision for the daily wants of the travelling patients" contained a complete kitchen, with cooking ranges for baking, stewing, and boiling, followed by a larder, cellar, and scullery. The ward carriages for the sick and wounded were arranged with portable beds on each side, six beds at one side and four at the other; the space left by the four beds at one side was fitted with a table and washing apparatus supplied with water by pipes. The interior of all carriages was lined with oil cloth on the walls and floors. The Red Cross was painted on the exterior, with an inscription in Russian letters stating that the vehicles belonged to the Berlin Central Society for the Sick & Wounded. The Emperor of Russia expressed his thanks, and those of the Army, for the gift. Both hospital trains were sent to Bucharest.

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The First Railway to Strood

At the end of the 18th century the Thames & Medway Canal was projected to facilitate the passage of vessels from River Medway ports to London, saving at least 30 miles by enabling them to avoid sailing round the Isle of Grain. The Thames & Medway Canal Company was incorporated by Act of May 16, 1800, and the work took 24 years to complete, largely by reason of a lengthy tunnel through the chalk hills between Higham and Strood. The formal opening of the canal took place on October 14, 1824. Twenty years later the canal company built a single-line railway, mainly along the towing path of the canal, which began at Milton, near Gravesend, and terminated at Strood, opposite Rochester. The engineer for the work was the famous John Urpeth Rastrick. The tunnel, 2½ miles long, was in two sections, one of 69 chains, and the other 1 mile 26½ chains, separated by a 4-chain opening. Being dead straight throughout its length, it was possible from one entrance to see the light at the other. The towing path through the tunnel was originally 5 ft. wide, and to accommodate the single-track standard-gauge railway the width was increased to about 10 ft. by a timber framework upon piles. The waterway of about 21½ ft. was thereby reduced to 16½ ft. This railway was opened on February 10, 1845, and its centenary thus fell on Saturday last. The undertaking was bought by the South Eastern Railway Company under an Act of August 3, 1846; the tunnel was drained; and the railway, widened to two tracks, opened on August 23, 1847. The portion of the canal between the north end of the tunnel at Higham and the south end of Gravesend basin has been abandoned only recently under powers obtained by the Southern Railway in 1934. (See illustrations, page 171).

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British Work on Persian Railways

Elsewhere in this issue we publish the second part of the article on British work on Persian railways in 1942. Particular interest attaches to the current part of the article because it throws into relief many of the difficulties with which the Royal Engineers had to contend in laying the foundation for effective aid to Russia. A number of the problems which then arose are worthy of study because they indicate some of the difficulties which arise in railway operating overseas in conditions similar to that encountered in Persia. Many useful lessons have been learned from the experience gained in Persia, and there is no doubt that as a result many of the disabilities will never be repeated. Considering the resources available and the many obstacles encountered, it was no mean feat for the British Transportation troops to handle eight times the volume of pre-war traffic within a year of their going to Persia and to lay the foundation on which the United States troops, when they took over, were able to build their much larger and lavishly-equipped organisation. The article, as a whole, bears testimony to the perseverance of the British R.Es. in the face of odds that at times must have seemed insuperable.

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Full-Fusion Rail Welding

A method of rail-welding which is becoming increasingly popular in the U.S.A., especially in the continuous welding now being installed in tunnels and elsewhere (see also page 156), is the full-fusion type of weld carried out with Thermit, which is replacing the older Thermit Type K weld. In full-fusion welding no preliminary cutting or dressing of the rail-ends is necessary. The ends are wire-brushed to remove scale, rust, and other foreign matter, and are aligned in clamps from ½ to ¾ in. apart.

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A mould is then applied, and the rail-ends are preheated to about 1,800° F. before the Thermit is ignited and poured into the mould through two gates, so designed that the molten metal washes the two rail faces, and actually melts a portion of the rails, before filling the space between. The theoretical temperature of the Thermit reaction is 5,400° F., but actually, because of alloying and heat losses, the temperature in the mould is about 4,000° F. To produce a weld metal with hardness much like that of the rail steel, manganese and nickel are added to the Thermit mixture, which gives a Brinell hardness of 275 to 290. The welding fins produced by the mould are of as rounded a contour as possible, as the sharp re-entrant angles of the fins produced by earlier methods were found to cause increased stress in parts of the web which are most heavily stressed in service.

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Radiographing Rail Welds

A large-scale application of the radiographic examination of rail welds has been made recently by the Denver & Rio Grande Western Railroad on rails just over 1,000 ft. long intended for use in the 6½-mile Moffat Tunnel (see also page 156). Each weld was photographed with gamma rays, and for this purpose capsules containing 600 milligrammes of radium were rented, sufficient to photograph five welds simultaneously. The gamma rays from a 100-milligramme radium capsule were considered as of equivalent quality to those from a 1,000,000- or 2,000,000-volt X-ray machine. Clamps with attached film-holders were placed on the rails at the welds, one vertically on the side of the head opposite a 100-milligramme radium capsule, which was hung on the other side, and a second horizontally under the foot; the former was given a 45-min. exposure, and the latter 10 min. When the welding, which was of the full-fusion Thermit type, was first started, rejections were high; but with experience they were reduced eventually to 2 per cent. This improvement was secured mainly by examination of etch tests made on experimental and rejected welds. To ensure the protection from radium rays of the men employed, each carried on his person a film similar to a dental X-ray film; this was developed fortnightly, to show if over-exposure to radium had taken place or not.

....

British Railways: Achievement and Prospect

IN an interesting lecture delivered at Morley College, London, by Mr. A. J. Pearson, Assistant to the President of the London Midland & Scottish Railway, which is given at length elsewhere in this issue, occasion was taken to deal not only with the achievements of the railways during the war, and the steps they had taken before the war which had made these achievements possible, but also to look towards developments in the post-war years. In Great Britain about £3½ thousand millions is employed in public transport and this total includes £1,200 millions for the railways. The number of persons employed in these transport services in 1939 was about 1½ millions. Mr. Pearson pointed out that an ordinary company engaged in buying commodities and selling them, after conversion, into retail goods, may turn over its capital twice, four times or even six times in a year. The rate of turnover is much less in the case of railway companies. In Great Britain in 1938 it was at the rate of once in six years, in 1928 once in five years and in 1913 once in eight years. He went on to argue that the preponderance of railway capital in ratio to annual receipts is due mainly to heavy initial outlay on the track and that this made it essential that if public transport was to be cheap, it had to be planned as a whole.

After a number of illustrations of the progress that has been made in railway operating and maintenance, Mr. Pearson went on to give some ideas on the possibility of future developments. He envisaged great competition for supremacy between the steam locomotive and electric and diesel traction, and thought it most likely that further consideration would be given to the electrification of the railways. Already there are 2,458 miles of track electrified and about £50,000,000 has been spent on this. He pointed out that whereas it was possible to introduce a small or localised urban or suburban scheme of electrification for passenger services, this was impracticable for the main lines except to meet a particular physical difficulty. A scheme of main-line electrification had to be large and it had to cater for all passenger and freight traffic. He put the minimum stretch for a scheme of main-line electrification at 200 miles. Important branches would also be required to be converted to electricity, to avoid delays, and it would also be necessary to electrify some sidings, but it would probably be found that larger siding groups, marshalling yards and lines in sheds would be dealt with better by diesel-electric locomotives.

Among other points which Mr. Pearson put forward was the need for closer co-operation between each of the various forms of transport, and the provision of new railway rolling stock. In connection with the latter, he thought that the aim in the future, as in the past, would be to reduce weight as much as possible. Freight services of all kinds would be interworked to give more economical loading and quicker delivery with less damage. Door-to-door transport would be increasingly important. Larger railway wagons, particularly for coal, were an obvious step in the right direction, as that reduced the cost of transport, but a governing factor was the capacity of the colliery screens. Much of this would not be possible unless there was a settled plan for transport when the war was over and he confessed his fears that this plan might not be decided on its merits, as a technical problem to secure for the country efficiency and cheap transport. He concluded by emphasising that to achieve the aim of full employment, a good transport system was essential. This would be provided if there was an understanding of the needs of transport, to enable it to give the public the service it required.

....

Supplies to Liberated Europe

THE situation regarding the flow of supplies to liberated Europe for the purpose of stimulating both the wartime and post-war industry in European countries has shown a marked improvement during the last few weeks. The subject is becoming of increasing importance and urgency as vast occupied territories are now being freed. In the early stages there will doubtless be a much greater flow of supplies from Great Britain than from the U.S.A., especially as the latter country has stated quite naturally that it will permit of no diminution in the shipping of military supplies to meet even priority civilian needs. The few ships which have been obtained so far have been made available in many cases by acceleration of unloading. Present needs have been the subject of very careful consideration for some years past, and it may be recalled that in 1942 the Allied Governments in London of the various occupied European countries began planning the rehabilitation of their countries. Plans for solving the problems of conveying relief materials to the impoverished peoples of Europe, after hostilities have ceased in any given area, were referred to briefly in our issue of November 27, 1942, when we recorded the establishment of the Technical Advisory Committee on Inland Transport under the Chairmanship of Professor E. R. Hondelink. When organisational schemes had been prepared in some detail, we referred again to the matter in our issue of February 26, 1943 (page 208).

The British Government participated in this rehabilitation plan by sponsoring the Allied Relief Bureau as a central office for the co-ordination of all programmes of requirements to set Europe on its feet. Programmes were worked out by an Inter-Allied Committee under Sir Frederick Leith Ross, known as the Leith Ross Committee, which consisted of Government representatives of the nine Continental Allied nations, as well as of the U.S.A. and the United Kingdom. There were several sub-committees formed, each for certain commodities or services, such as food, medical supplies, agricultural, industrial, and livestock. The conclusion was soon reached that all planning would lose much of value if it was uncertain whether supplies would reach the distribution areas. Ocean shipping at that time was well organised under central control, and it became apparent that inland transport and storage in Continental Europe must be planned also. The Technical Advisory Committee on Inland Transport, under the Chairmanship of Professor Hondelink, soon became known as T.A.C.I.T. It was formed originally as one of the sub-committees under the Leith Ross Committee, and covered ports and storage, railways, inland waterways, and roads, and the rehabilitation and restoration of through traffic.

When in 1943 U.N.R.R.A. was established, the Leith Ross Committee and the Allied Relief Bureau wound up their work, and their staffs were embodied in the wider U.N.R.R.A. organisation. The only exception was that of transport, which already covered a wider field of planning than simply relief and rehabilitation. Therefore, T.A.C.I.T. continued its work independently of U.N.R.R.A. but in the closest contact with the U.N.R.R.A. European office. The Chairman (Professor Hondelink) also visited the U.S.A. recently to make further contacts with U.N.R.R.A. headquarters, and with U.S.A. Government Departments. It was arranged that T.A.C.I.T. should now report direct to the member Governments, still the U.K., the U.S.A., and the nine Allies in Europe, and also the Dominions of Canada and New Zealand as interested in supplies. The military authorities also

participated. T.A.C.I.T. planning covered chiefly the following two fields:—

- (a) Estimating the requirements of transport equipment in the widest sense for the reconstruction, maintenance, and operation of the continental transport systems; and
- (b) Co-ordinating transport to ensure efficient and speedy movement of all essential traffic, such as relief, reconstruction, military, repatriation, and so forth.

T.A.C.I.T. members were technical experts from all member nations, among them ministers and ex-ministers of transport, managers, engineers of railways, waterways, ports, road transport, many with experience of the same problems after the last war, and also representatives of production and supply authorities, and the Defence departments of the U.K. and the U.S.A. The U.S.S.R. did not take part in the work at this stage, but showed interest and was kept informed of developments. In an early report T.A.C.I.T. recommended setting up a central body to co-ordinate all efforts in the rehabilitation of transport in Europe as desired by the various Allied nations. This recommendation was accepted by the Governments concerned, and resulted in October, 1944, in the convening of a conference in London. The U.K., the U.S.A., the U.S.S.R., and the nine Allied European Governments (Belgium, Czechoslovakia, France, Greece, Yugoslavia, Luxembourg, the Netherlands, Norway, and Poland) and military representatives of the High Command in Western and Southern Europe were included. Formal and informal talks have continued since, and the Governments concerned now have under consideration the conferences' reports. It is hoped that a final decision will be reached before long, and that the recommended organisation will be established under the name of the European Central Inland Transport Organisation (E.C.I.T.O.).

Up to the present the activities of T.A.C.I.T. have already been successful in securing the supply of motor lorries for various parts of Western Europe and in facilitating the negotiations for the supply to France of 700 steam locomotives. A somewhat smaller number of locomotives is now in course of negotiation for supply to Belgium, and the needs of Holland have been considered and are in course of being met from Sweden. For the Balkans, T.A.C.I.T. has also been successful in arranging through U.N.R.R.A. for the supply of 280 standard-gauge steam locomotives for use in Greece, Yugoslavia, Czechoslovakia, and Poland, and 10 narrow-gauge engines for Yugoslavia. As already mentioned, Sweden is co-operating to the extent of supplying equipment for Holland, and it is hoped eventually to secure even closer co-operation on the parts of the two principal neutrals, namely, Sweden and Switzerland.

In conclusion, it should be emphasised that the principle on which the T.A.C.I.T. organisation has been designed is that it shall in no way interfere in the internal administration and operation of national transport systems. It confines its activities to the spheres of help outlined above.

Contributory Negligence

THE Law Reform (Contributory Negligence) Bill, which recently has been given a second reading in the House of Lords, and has been committed to a Committee of the whole House, proposes to relax the rigidity of the old doctrine of contributory negligence applicable to claims for damages in respect of accidents on land. Under the existing law, both in England and Scotland, a claimant for damages in respect of injury caused by accident through the negligence—however gross—of the other party can recover nothing if he has even in the slightest degree contributed by his own negligence to such accident. It is proposed by the new Bill in substance to apply to such cases the rule established under the Maritime Conventions Act, 1911. According to the law of the sea relating to collisions, if an injured ship proves that the other ship was in fault and helped to cause the damage, it may get a certain amount in compensation even though it was itself negligent. In the new Bill the principal operative provision is Clause 1(1) which enacts:—

"Where any person suffers damage as the result partly of his own fault and partly of the fault of any other person or persons, a claim in respect of that damage shall not be defeated by reason of the fault of the person suffering the damage, but the damages recoverable in respect thereof shall be reduced to such extent as the court thinks just and equitable having regard to the claimant's share in the responsibility for the damage."

Running-down cases and collisions between cars provide the chief instances of the hardship which the Bill is designed to

prevent, and these were prominent in the debate on the second reading. There is nothing in the Bill, however, to restrict it to this class of accident. Lord Wright said that the law of negligence was one which ought to be made as correct and as apt as possible, because it affected most nearly the whole mass of the population. In his experience as a Judge of Assize he had instances constantly in which the unfairness of the rule was only too prominent. One result was that juries in considering the facts, when they were told that the fault was the plaintiff's and they ought to find for the defendant, however much they thought the defendant was to blame—generally slurred over in their minds, quite honestly—the awkward and unfair aspect of contributory negligence. Consequently, the facts were not properly dealt with. In Scotland, as Lord Macmillan put it, the defender under the existing law must be liable for all or for nothing.

Under the Bill, the person who has suffered a wrong will recover what he ought to recover, no more and no less. Having regard to the fact that the Government is considering proposals for a scheme for workmen's compensation based on new principles, the Lord Chancellor expressed the opinion that it would not be to the advantage of workmen to have the new law of negligence applied in the interval before the new workmen's compensation code was enacted.

Buenos Ayres Great Southern Railway

THE report for the year ended June 30, 1944, shows that, notwithstanding the increase of £1,222,517 in gross receipts—mainly due to the continued internal prosperity of Argentina, and to some extent to increases in tariffs—the final results were disappointing. Working expenses increased by £1,676,046, chiefly due to a further rise in fuel costs of £1,490,575. Exchange differences of £778,813, although less than the figure of £967,372 for the previous year, were another heavy burden, and the balance remaining after deduction of these items was reduced from £1,380,311 to £1,115,341. After including sundry credits of £67,478, the amount available for fixed charges is £1,182,713. This is sufficient to cover the year's interest due on debenture stocks, annuities, etc., but does not fully meet charges under working agreements, etc., and the final result of the year's working is a debit balance of £630,553. The accompanying table compares some operating figures:—

	1942-43	1943-44
Passengers	59,660,190	62,475,240
Public goods, tons	7,949,180	8,408,851
Operating ratio, per cent.	80.67	85.83
Passenger receipts	2,879,216	3,110,100
Public goods, receipts	6,152,660	6,882,600
Gross receipts	12,142,607	13,365,124
Working expenses	9,794,924	11,470,970
Net receipts	2,347,683	1,894,154

Passenger traffic increased substantially both in numbers and receipts, and receipts from luggage and parcels amounted to £1,117,795, an increase of £72,844. Fruit traffic played an important part in the earnings from parcels. In goods traffic, which showed an improvement under nearly every heading, general merchandise was up 25.47 per cent. in tonnage and 19.19 per cent. in receipts, and livestock receipts were £153,456 higher. Expenditure on renewals during the year amounted to £193,512, of which £7,868 has been charged to working expenses. The reduction in the charge to working expenses arises from exceptional credits to the renewals reserve in respect of sales of scrap materials.

Buenos Ayres Western Railway

ALTHOUGH working expenses, as shown in the report for the year ended June 30, 1944, increased by £186,291, this rise was more than covered by the advance of £232,436 in gross receipts, with the result that the net operating receipts of £530,742 were £46,145 higher. Exchange differences of £234,635, comparing with £266,830 in the previous year, have to be deducted, and the amount available for fixed charges, after crediting £190,672 from annuities, dividends, interest, etc., is £486,779. As fixed charges, payments due under working agreements, etc., require £557,019, the net result of the year's working is a debit balance of £70,240, which compares with £85,892 at June 30, 1943. Passenger traffic numbers and receipts improved materially, and luggage and parcels brought in £18,080 more. In public goods traffic as a whole there was a decrease of 277,935 in tonnage, but an increase of £23,724 in receipts. General merchandise improved 14.57 per cent. in tonnage and

24.69 per cent. in receipts. Some operating figures are compared in the accompanying table:—

	1942-43	1943-44
Passengers	32,113,208	37,748,769
Public goods, tons	3,427,600	3,149,665
Operating ratio, per cent.	88.29	87.86
Passenger receipts	£ 1,091,363	£ 1,191,363
Public goods receipts	1,708,006	1,731,730
Gross receipts	4,138,747	4,371,183
Working expenses	3,654,150	3,840,441
Net receipts	484,597	530,742

Fuel and electric current cost £287,926 more than in the previous year, but maintenance of rolling stock decreased by £30,844. Expenditure on renewals amounted to £46,755, of which £4,985 has been charged to working expenses. The balance of £41,770 was more than covered by exceptional credits to the renewals reserve arising from hire charges, disposal of scrap materials, etc., during the year.

Payments of a half-year's interest on the 4 per cent. and 5 per cent. debenture stocks were made on August 3 and December 5, 1944. A further half-year's interest is being paid on March 23, bringing the payments up to December 31, 1944. An extension to June 30, 1945, of the moratorium for payment of interest on the 4 per cent. and 5 per cent. debenture stocks and 5 per cent. 3-year secured notes was approved at meetings of their holders in June last.

♦♦♦♦

Great Northern Railway Company (Ireland)

THE report of the Great Northern Railway (Ireland) for the year 1944 shows that gross receipts from the railway amounted to £3,023,274, an increase of £227,982 in comparison with 1943. Railway expenditure was £2,397,035, an advance of £188,684, of which £181,500 represented the increased cost of salaries and wages and of locomotive fuel, and the ratio of traffic receipts to total traffic expenditure was 79.76 per cent., against 79.38 per cent. Net receipts from railway working rose from £586,941 to £626,239. Road transport net receipts in Eire rose from £33,848 to £49,315, but the profit on hotels, and on refreshment rooms and cars fell from £28,661 to £20,294, although the gross receipts from

this business improved by £33,776. Provision for E.P.T. and income tax is £315,303 and an allocation of £58,000 is made to reserve for arrears of maintenance and contingent liabilities. The ordinary dividend for the year is 2½ per cent., the same as for 1943, and the improved position has enabled the directors also to recommend a bonus of 1 per cent. and substantially to increase the amount to be carried forward. The following table compares the general financial position in the past two years:—

	1943	1944
Total expenditure on capital account	£ 10,052,929	£ 10,699,939
Gross receipts from businesses	3,102,639	3,392,305
Revenue expenditure on ditto	2,453,189	2,696,457
Net receipts of ditto	649,450	695,848
Miscellaneous receipts (net)	60,828	68,983
Total net income	710,278	764,731
Interest, rentals, and other fixed charges	488,584	494,882
Dividends on guaranteed and preference stocks	114,738	114,738
Dividend on ordinary stock	101,267	101,267
Bonus on ordinary stock	—	40,507
Rate per cent. dividend	2½	2½
Rate per cent. bonus	—	—
Surplus	5,689	13,337
Brought forward	3,795	9,484
Carried forward	9,484	22,821

The reports of the Great Northern Railway issued since the beginning of the war have been of particular interest because of the liberal amount of operating figures given. In the present report we welcome especially the map reproduced on the last page. Ordinary passenger receipts in all three classes showed improvement, except for a fall of £9,858 in earnings from workmen's tickets. It is of interest to note that the total first class receipts of £143,521 and the total second class receipts of £158,278 represent respectively 10.07 per cent. and 11.19 per cent. of the total receipts from passenger traffic. Receipts from parcels and mails were £179,688, compared with £171,974. Goods traffic receipts amounted to £1,340,446, against £1,209,289, and represented 45.52 per cent. of total traffic receipts compared with 44.35 per cent. in 1943. The principal increase in goods traffic was that of £90,659 in merchandise.

The company's stock of steam locomotives consists of 150 tender engines and 40 tank engines. It also has nine diesel railcars and two diesel rail buses. The stock of passenger carriages is 357. Goods and mineral vehicles now number 5,656, against 5,601. The length of track renewed during the year was 11 miles 71 chains.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

South Australian Railways 4-8-4 Locomotives

Silvertown Lubricants Limited,
14, Linton Road,
Oxford, February 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of January 26 there is an interesting article describing the South Australian Railways new "520" class 4-8-4 locomotives. In the course of the article reference is made to the fact that two mechanical lubricators are fitted to each locomotive.

On page 79, an editorial note suggests that these lubricators are of Australian manufacture, inasmuch as only the boiler plates, roller bearings and exhaust injector are mentioned as being non-Australian. Actually, the Silvertown mechanical lubricator, together with the special atomiser for cylinder lubrication, was manufactured in this country, and is being fitted to all locomotives of this class.

Yours faithfully,
J. RUSSELL KNOWLES,
Managing Director

Cylinder Wear

Associated Locomotive Equipment Limited,
Shrub Hill,
Worcester, February 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The practice described by Mr. York in your December 15 issue and previous correspondence regarding drifting steam from a "cracked" regulator is interesting but, as with air valves, bye-pass, or other devices, this surely does no more than alleviate troubles of carbonisation associated with piston valves, even if steam at 15 lb. is used, as mentioned by Mr. Sanford.

It may be observed that, on closing the regulator of locomotives fitted with British-Caprotti gear, the steam-actuated inlet and exhaust poppet valves fall away from their seats, pro-

viding automatically a free connection between the ends of the cylinders, pressure being maintained constant at atmospheric, as proved by indicator cards even when coasting at the highest speeds. The result is almost complete absence of carbonisation, the ports, passages, valves, etc., remaining remarkably clean and free from carbon deposit.

Not only is cylinder-wear reduced but the poppet valve allows of satisfactory operation at very high superheats; a recent test has recorded as much as 840° F. when working hard, whereas other engines of the same class, but fitted with piston valves, had to have some elements shortened to keep temperatures down, due to scored valve chest liners.

Yours faithfully,
E. W. MARTEN,
Managing Director

L.N.E.R. Standard Coaches

London, S.W.1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The L.N.E.R. is to be congratulated on putting into service a standard post-war first class carriage, as recorded in your January 19 issue.

Sir Charles Newton's notice, handed to passengers, did not specifically ask for criticisms and suggestions, but he will doubtless receive them from the travelling public.

Study of the diagram in your issue of January 19 gives no indication of the fitting of one important safety device which has frequently proved its worth in other countries. I refer to the provision of anti-telescoping posts and beams of the type illustrated by you in your issue of June 17, 1938, when fitted to Canton-Hankow third class sleeping cars.

In this scheme two 9-in. by 4-in. I posts are firmly secured to the buffer beams on each side of the vestibule connection, and two further posts are located in rear of them; the tops are braced by beams and a diaphragm plate which transfer part of collision stresses to the body sides.

Although all new main-line coaches in China were, from 1932, of all-steel construction, branch-line coaches continued to be fitted with wood bodies. On both types of body these beams were standard and during the not infrequent mishaps consequent

on the Civil War and Japanese War conditions, no case of telescoping is known to have occurred.

I can therefore recommend the scheme to the consideration of the British railways as it will be seen that, in the present L.N.E.R. design at least, no difficulty in its incorporation exists. In view of the higher speeds of post-war trains, it seems that no reasonably priced safeguard of this kind in the railways' own interest should be omitted. The scheme, of course, is not covered by patents.

May I at the same time recommend strongly the adoption of the all-steel vestibule connection which proved cheap in first cost, draught free, and far lower in maintenance costs than the leather and canvas type.

Yours sincerely,
KENNETH CANTLIE

Unknown People and Their Parliament.

Thaxted. January 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It would take more space than you are prepared to give to reply adequately to Mr. Richardson's letter in your issue of January 19. It may assist, however, if I attempt to define the standpoint from which I regard the points he raises.

Before doing so, may I say that I did not, as Mr. Richardson supposes, overlook the extent to which unemployment limited the freedom of the pre-war worker. I contend merely that before the war the worker enjoyed a liberty, when employment was offered, to accept or refuse and that he could, and did, move from one firm to another for reasons of his own. Today, under a temporarily nationalised economy, he cannot do so. What has to be decided is whether or not he will regain a liberty which in most cases he greatly desires. In any case, in the long run it cannot be advantageous to open the door to the wholesale employment of men and women by Governments dependent on votes for their existence.

When considering the future relationship of the State to industry we must not be guided too much by what has happened in the past. Great Britain has never been a democracy in the true sense of the term. It has always been an oligarchy. Even during the brief Labour administration the balance of power rested with the Asquithian Liberals thinking in the Balliol tradition. Unfortunately, the ruling class was of late years too effete to do more than fill the Treasury Bench and the higher divisions of the Civil Service. It produced no leader with political principles and constructive ability. It took its foreign policy at second hand from the Foreign Office and its social policy at second hand from its opponents, and in the hour of danger it scoured the highways and the hedges for someone prepared to shoulder its responsibilities. Mr. Churchill is no more representative of the normal public school-university product than was Mr. Lloyd George. In short, political and social influence will probably be considerably more diffused in the future than it has been in the past—with what result it is impossible to say.

I will not attempt to assist Mr. Richardson to a proper definition of the State. It is sufficient that by the use of that term we imply the collective resources or actions of the people of a country as represented by their Government. What seems to be material is that a Government can expend the resources of the individual or can dictate his actions without his consent and in default of his good will. In such circumstances Mr. Richardson's statement that the State cannot be separated from the individual may be theoretically accurate and yet, for all practical purposes, of no interest whatever.

However, the point I wish to make is that where the British administration has differed from other administrations in other countries is in the existence of a Parliament which in times past has stood between the Government and the governed. It may suit the convenience of a Government to repudiate an agreement or to ignore an understanding (such things are bound to happen), but in the long run it can never be anything but prejudicial to the power and prestige of Parliament to let them do it, for the power and prestige of Parliament is built upon the confidence with which men turn to it in the hour of need.

I have expressed myself badly if it is imagined that in my opinion Parliament is entirely blind to this consideration. On the contrary, there are members in all parts of the House to whom the reputation of Parliament is of infinitely more consequence than any party advantage. But, taking the House as an entity, I doubt if it is as jealous of its reputation as it once was and, just for that reason, I doubt if it any longer commands precisely the same influence outside its own walls.

If such is the case, the fortunes of railway stockholders are only one detail in many, for it may well be that the confidence of the people in their Parliament, in its courage, its wisdom and, above all, its integrity alone stands between us and the deluge.

I am, yours truly,
ASHLEY BROWN

British Railway Work in Persia

January 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of January 26, and in an earlier issue, you give some notes on the Persian Railways, but your correspondent seems to have either a vivid imagination or a large measure of poetic licence.

While the excellent work of the U.S. Army must not be belittled in any way, it is only fair to our own railway troops to point out that it was they who were responsible for the arduous work of bringing the Persian railways from the poor state they were in when we went into that country to first class condition. When the handover took place, the U.S. Railway Troops took over a first class group concern, including the workshops, and the inference that U.S. Troops had to assemble engines and rolling stock with a scratch collection of tools in what was then virtually bare desert is somewhat misleading.

Yours faithfully,
H.

[We quite agree with our correspondent that the achievements and difficulties of the R.E.s. during the 15 months in which they laid the foundations for effective aid to Russia are well worthy of more adequate acknowledgment than they have yet received. With the approval of the British authorities we published in our February 2 issue the first part of an article giving as much detail as Censorship will permit. The second part of the article is elsewhere in this issue. In this matter, as in other matters in which both British and American Forces have participated, differences in policy between American and British conception of what is desirable on security grounds have often resulted in American achievements being publicised while there is still a ban on the comparable British work.—Ed. R.G.]

Sulphur and Phosphorus in Rail Steel

Crown Agents for the Colonies,
4, Millbank, London, S.W.1. February 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the leading article which appeared in *The Railway Gazette* of January 26, 1945, you referred to the fact that although the limits for sulphur and phosphorus in rail steel were increased in the amendment of March, 1941, to B.S.11 to 0.07 per cent. respectively, no deleterious effects had been experienced and, in fact, an increased capacity thereby to resist wear was hinted at.

In my experience, the steelmakers have not, in fact, taken advantage of this concession; perhaps with very good reason. My records show that for 91 casts of open hearth basic rail steel supplied since this amendment, the highest figures were for S. 0.053 per cent. and for P. 0.057 per cent., the average figures being S. 0.042 per cent. and P. 0.038 per cent. For 59 casts of Bessemer acid steel during the same period the highest figures were for S. 0.054 per cent. and for P. 0.062 per cent., the average figures were S. 0.038 per cent. and P. 0.054 per cent. These were all medium manganese rails. The argument put forward, therefore, seems to be without foundation.

Another point is that when the 1936 edition of B.S.11 was drawn up the makers fought for the percentage elongation to be reduced to a minimum of 9 per cent. in the case of medium manganese rails. This has since proved to be entirely unnecessary as the lowest elongation measured has been 14 per cent., the average being 17.68 per cent. for O.B. and 19.38 per cent. for B.A.

Yours faithfully,
J. W. NORRIS,
Deputy Chief Inspecting Engineer

Railway Accident Reports

Merope, Trevone Bay,
Padstow, Cornwall. February 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Many enthusiasts and students are, it seems, anxious to obtain copies of the more important Board of Trade and Ministry of Transport Accident Reports. These are all now out of print. It is proposed, when conditions allow, to approach H.M. Stationery Office with a suggestion that the reports dealing with major accidents and those containing features of special interest should be reprinted.

In order to gauge the possible demand for these, I shall be very grateful if anyone interested in the proposal will write to me, intimating those reports which they would like to see made available in this way.

Yours faithfully,
C. R. CLINKER

The Scrap Heap

NEW LAMPS FOR OLD

Every week five special stores vans, attached to ordinary passenger trains, run from the G.W.R. central stores depot to stations throughout the system, carrying lamps, brooms, brushes, shunting poles, sponge cloths and dusters. The railway "tallymen," who travel with these vans, exchange new lamps for old and clean-sweeping brooms for pieces of wood and clusters of bristles. In this way 12,350 lamps, 4,250 lamp burners, 1,000 brooms, 1,120 brushes, 19,480 shunting poles, 83,800 sponge cloths and 181,170 dusters are issued each year.

SHOUTS FROM THE PLATFORM

Most of us begin our acquaintance with railway phraseology in the nursery. Expressions like "tickets please!" enter our vocabulary long before they have associations with searching through pockets or disappearing under the seat.

Later, as we begin to travel, we learn other phrases associated with particular stations. At Waterloo tube station, on the Bakerloo Line of London Transport, they have a way of calling "mind the gap!" with apparently undiminished solicitude for every trainload of passengers. Doubtless the staff here is encouraged and inspired by the success of their exhortation, for in spite of the flair so many passengers have for doing the wrong thing, we have never seen one step into the void between carriage and platform.

Not far away, at Baker Street, Metropolitan Line, they cry "stand away there!" to late arriving passengers with a degree of ferocity we have not heard paralleled elsewhere. Yet here the warning is pretty generally ignored, and we rarely travel from the station in the rush hour without at least one panting individual wrenching open the door as the train moves, falling over our feet, and then looking round for approval of his defiance of the angry shouts from the platform.

A milder method is now used at Leicester Central, L.N.E.R., where instead of crying "hold!" to the passenger they say it to the train, the booking clerk being provided with a microphone through which he can warn the

platform staff of a belated passenger about to emerge from the subway. What formula is used we do not know, but presumably something like "one more coming up!" (making the passenger feel like a Welsh rarebit in a teashop) will join the railway repertoire.

B. K. C.

What our generation has forgotten is that the system of private property is the most important guarantee of freedom, not only for those who own property, but scarcely less for those who do not.—From "The Road to Serfdom," by F. A. Hayek.

On page 157 is given an account of a lecture delivered at Morley College by Mr. A. J. Pearson, Assistant to the President of the L.M.S.R., in which he gives some ideas of possible developments. In other words, Mr. Pearson peers on.

100 YEARS AGO

[From THE RAILWAY TIMES, Feb. 15, 1845]

CENTRAL SAMBRE AND MEUSE RAILWAY.—Having ascertained that the representation made to me in London, relative to the subscription for the capital for this undertaking, and those concerning the respectability of the parties conducting the financial part of the affair are false, I hereby give notice that I have withdrawn my name from the Direction, and that I have no further connection with the parties.

AUGTE, DELAVELEYE, Civil Engineer.
Brussels, February 11, 1845.

DEDICATED TO CHARLES STEVENS, ESQ., OLD JEWRY, SOLICITOR TO THE GREAT WESTERN RAILWAY.

Preparing for publication, by desire, Second Edition, **RAILWAY AND LAND TAXATION;** the Law, Operation, Statistics, &c. of Poor and other Rates, &c. &c. Accepted by Prince Albert, the Duke of Wellington, &c. Recommended by the *Times* (Leader), November 1; *Railway Times*, October 5; *Railway Record*, October 25; *Railway Chronicle*, November 9, &c. Price Two Shillings.
London: Booksellers—Shaw's, 136, Fetter-lane; Reid's, 15, Charing Cross, and 15, Motcomb-street.

SOUTH EASTERN (LONDON AND DOVER) RAILWAY COMPANY.—Notice is hereby given, That the Transfer Books of this Company, will be Closed from Wednesday, the 26th day of February, 1845, to Tuesday, the 18th day of March next, both days inclusive.

By order of the Board,
JOHN WHITHEAD, Secretary.
Railway Office, London Terminus, Feb. 10, 1845.

Demy 8vo. Price 1s.

GOOD!—A proposition on the National Debt; with the ways and means of the riddance from all oppressive Taxes; By LUKE JAMES HANSARD.—Feb. 1845. Printed and published by Luke James Hansard, 6, Great Turnstile, Lincoln's-inn fields, London; and may be had of all booksellers.



"We're a deputation from the fourth coach back—what's all the delay about?"

(Reproduced by permission of the proprietors of "The Tatler and Bystander")

[The engine is a new type to us. It appears to be an improved L.B. & S.C.R. Stroudley, namely: 0-4-4-0 instead of 0-4-4-2.—Ed., R.G.]

NOT KIND

A civil servant friend of ours has remarked that the Ministry of Fuel & Power is becoming known as the Ministry of Fools in Power.

TAILPIECE

(A return to pre-war standards of service on the railways is desirable)

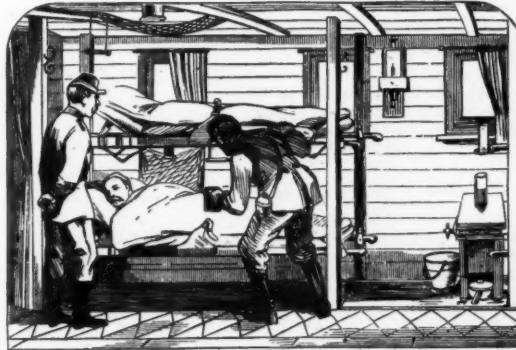
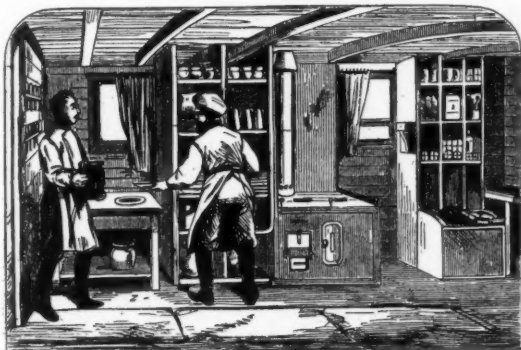
Service combined with courtesy
Asks little of publicity,
But sells itself, gives good returns,
And revenue in plenty earns.

Due thoughtfulness for public needs
Is better than mere "poster" deeds.
It strives to please and points the way,
Gives satisfaction every day.

A falling off has war disclosed,
Bad service and packed trains imposed,
No food or drink served on the trains.
Come, railway magnates, use your brains!

It pays to advertise, we're told,
And if you'd profit manifold,
Make "service" your advertisement,
And be on courtesy intent. W. E. N.

Hospital Train built in Germany for Russia in 1877



Two views of a hospital train for sick and wounded of the Russian Army (then fighting Turkey) which was supplied in 1877 by the Berlin Central Committee of the International Association for the Relief of Sick & Wounded Soldiers in the Field. Two complete ambulance trains, each of 25 carriages, were built at the works of the Posen Railway at Guben, for the Russian Armies in the Bulgarian Campaign. The left view shows the kitchen, and the right a corner in a ward car (See editorial note, page 150)

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

VICTORIA

Railway Staff

At June 30 last, 3,181 officers and employees of the Victorian Government Railways had joined the Armed Forces, of whom 73 had lost their lives in the service of their country; and 387 had been discharged and rejoined the Railways Department. Officers and employees on loan to other Government departments numbered 468. Thus the total number on leave with the Armed Forces or other departments at the close of the financial year 1943-44 was 3,189, an increase of 67 over the previous year. In addition, during 1943-44 time equivalent to approximately 1,300 employees was worked on the manufacture of munitions and tools for defence requirements.

At the commencement of the year 1943-44 the total permanent and supernumerary staff was 25,374, with casual labour representing 432 men working full time, so that the total staff was equivalent to 25,806. At June 30, 1944, the comparable figures were 25,636 and 304, respectively, or a total of 25,940.

Overtime Working

Because of overtime working, the average strength of the staff is better represented by converting into ordinary time units the total time paid for. On this basis the equivalent number of full-time men debitable to railway working expenses was 24,794 in 1943-44, compared with 24,422 in 1942-43.

During the last financial year the permanent staff was increased by the appointments of 133 apprentices to various trades.

Salaries and wages disbursed during the year amounted to £8,970,445, compared with £8,670,724 in the previous financial period.

SOUTH AFRICA

Railway Tender Board

The new South African Railways & Harbours Tender Board started functioning on November 15. This Board, which has its own permanent Chairman and its own secretariat, is governed by special regulations. The chief purpose in its establishment is to reduce the purchasing authority of heads of departments and to co-ordinate all buying in one channel. The Chairman will be able to consult the experts available in the Railways & Harbours service whenever necessary. Overlapping is expected to be eliminated, and greater co-operation between the various departments to result.

Formerly, the Chairman of the Union Tender & Supplies Board also functioned as the Chairman of the Railway Tender Board.

New Railway Lines

Requests for new railway lines are being received from various parts of the country, but many of the projects already have been investigated and found impracticable. It is recognised that in many parts of South Africa, not at present served by either railway or road motor services, the need for transport is urgent, but that the solution of the problem is not necessarily represented by new railway lines. The Road Motor Transport Services branch of the South African Railways & Harbours will be extended greatly as soon as vehicles are available, and will be used to an increasing extent in opening up undeveloped parts of

the country and in providing feeder services for the railways.

The Government's policy in the matter of railway construction has been stated from time to time by the Minister of Transport. It is to the effect that railway lines can be constructed and operated at the expense of the Administration only when the traffic offering will produce sufficient revenue to cover expenditure, including interest and depreciation charges; and where additional facilities are required to ensure efficient and economic traffic operation. Special consideration is given in circumstances where railways are intended to serve specific interests, including industrial and mining undertakings. Such lines are constructed subject to an unqualified guarantee against all losses in working, including interest and depreciation charges.

CANADA

Rail-Defect Detection on the C.N.R.

As on the principal railways of the U.S.A., so in Canada the Canadian National Railways are making systematic use of Sperry detector cars to increase the safety of their tracks by discovering internal defects in rails and removing affected rails before breakages occur. The first use of Sperry detection by the C.N.R. was made in 1930; and up to the end of 1944 the total length of track run over by these cars had increased to 144,007 miles.

On lines carrying heavy traffic, the inspections are made as frequently as every six months; the average frequency for the system has worked out at six times in the past 15 years, and the entire track-mileage of the C.N.R. has now been covered, including the lines of the Grand Trunk Western Railroad in Michigan, Indiana, and Illinois, and of the Central Vermont Railway in New England. The total route-mileage thus to be covered is about 24,000.

It is planned that, during 1945, the Sperry cars shall travel over 14,372 miles of track, or 666 miles more than was inspected in 1944, and more than half the route-mileage of the system.

UNITED STATES

Rail Welding in Moffat Tunnel

One of the most important locations in the United States in which continuous rail-welding has been carried out is the Moffat Tunnel (6.21 miles long) of the Denver & Salt Lake Railway (a subsidiary of the Denver & Rio Grande Western Railroad). In 1942 and 1943, a total of 66,000 ft. of continuously-welded rail was installed in the tunnel. The section chosen was one weighing 130 lb. per yd., uniform in web and foot profile with the previous 112-lb. section, but with a head $2\frac{1}{2}$ in. deep, to permit additional head wear before renewal becomes necessary. It is hoped in this way to extend the life by at least 2 years from the previous 4 to 5 years.

The previous rails were welded in 1938 by the Thermit type K process, with fusion of the web and base, which are cut away for the purpose, and pressure at the junction of the rail-heads, but although, with 1,052 such welds, there was little trouble for some years, in the last year of service of these welded rails failures of all kinds were experienced in considerable numbers.

In the present installation, therefore, the full-fusion type of Thermit weld had been

substituted, and no weld has been accepted unless it has passed a radiographic test for soundness, as described in our editorial notes on page 150.

The rails were welded in continuous lengths of 1,017 ft., four at a time, at a depot outside the east portal of the tunnel. Pre-heating to 1,800° F. was carried out with portable kerosene burners in conjunction with a petrol-driven air-blower. After the welding operation, and the removal of the moulds, the weld gates were cut off with an oxy-acetylene torch; the running surface of the rails was then ground to the correct contour by a heavy-duty petrol-driven carriage-mounted grinder, kept central by flanged rollers; and the sides of the rail-heads were finished with portable power-driven grinders. The final operation was the radiographic photography of each weld, mentioned above, and re-welding in the relatively few cases in which weld defects had been disclosed.

The 1,017-ft. lengths were moved to their sites in the tunnel by skidding in pairs over the existing track on sleepers fitted with soleplates and inverted, so that the soleplate shoulders acted as flanges; the sleepers, to which the long rails were spiked, were about 40 ft. apart, and the diesel-electric shunting locomotives used skidded the rails at speeds of up to 25 m.p.h. Maximum speed was essential, on account of the obstruction caused on this busy stretch of single track while the operation was in progress. Closure welds were made *in situ*, and, although after these had been radiographed, some slight defects were discovered, it was decided in those cases that they were not of sufficient moment to justify re-welding, with the hold-up of traffic which that would have entailed.

SWITZERLAND

Bernese Jura Systems

The hilly area between La Chaux-de-Fonds and Porrentruy, in north-western Switzerland, is served chiefly by local private railways: (1) Saignelégier-Glovelier, about 15 miles, opened 1904, standard gauge, steam; (2) Saignelégier-La Chaux-de-Fonds, about 17 miles, opened 1892, metre gauge, steam; (3) Tavannes-Tramelan-Noirmont, about 15 miles, opened 1884-1913, metre gauge, electric; (4) Pont-Sagne-Chaux-de-Fonds, about 10 miles, opened 1889, metre gauge, steam; (5) Brenets-Le Locle, about 3 miles, opened 1890, metre gauge, steam; (6) Porrentruy-Bonfol, about 9 miles, standard gauge, steam.

All the above, except the electric line, require rehabilitation. At a meeting held on June 23 in Bienne, representatives of the companies concerned approved in principle the amalgamation scheme proposed by the Federal Traffic Department as a preliminary to the grant of Government subsidies to a total of fr. 4 million for electrification and general improvements. The latter would include conversion of the Saignelégier-Chaux-de-Fonds line to standard gauge, giving more direct through communication between the industrial centre of Canton Neuchâtel and Delémont, Porrentruy and Basle, also re-alignment of the Saignelégier-Glovelier line and elimination of a reversing station. Preliminary construction work can commence as soon as the financial side is settled. It is understood that the electric-railway company is not anxious to be included in the amalgamation, as it is in a more satisfactory position than the other lines concerned, but that local interests are insistent on its participation in the scheme and even on its conversion to standard gauge.

Railways in Retrospect and Prospect

A survey of achievements and a look towards the future
by Mr. A. J. Pearson,* Assistant to President, L.M.S.R.

THE aim of transport is by movement to add to the value of the thing moved, or to meet a human need other than by walking, and, in the case of commercial transport, out of that value or need to earn for itself an adequate return on the capital provided for the purpose. In peace, civilisation depends on transport; in war, success depends on it. As we are at war, perhaps I may quote the considered opinion of Field-Marshal Wavell: "The more I have seen of war," he wrote recently, "the more I realise how it all depends on administration and transportation."

The methods a transport man uses are much the same in peace or war. His is not a job for the amateur; it requires the specialised training of a working life, and it cannot be picked up in the course of a year or two, particularly in the stress of a great war. This is the reason why, during this war as in the last, the actual operation of the transport systems wisely has been left in the hands of those normally responsible for running them, and they, in turn, have provided the back-bone of the transport side of the fighting Services.

24-Hour Job

The first point I want to make is that this job of transport, in peace or war, goes on steadily throughout the 24 hours of every day and seven days a week. It is in this way that the transport machine should be visualised and not in the more colourful pictures that are occasionally made public of some outstanding event. Transport people use the same fundamental methods whether they are conveying armies to make possible a "D" Day, or moving a vast crowd for a peacetime Bank Holiday, or performing the daily task of transporting millions of people into and out of the cities and towns throughout the country. In carrying out their daily task in one single year of this war, the British railways alone conveyed 32 thousand million passenger-miles and 24 thousand million freight ton-miles—numbers so huge that the imagination fails to grasp them.

The German transport organisation has had a like task to ours; before the war transport people in the two countries were constantly studying each other's methods and there was mutual respect of the methods of each. There appeared to be none of the morbid fanaticism about the German transport leaders that characterised the Nazi Party, and there is no doubt—despite the disparagement that has sometimes appeared in the newspapers—that the German transport system was good for the purpose it had to serve.

Or consider their invasion of and retreat from Russia; the railway gauges in the countries concerned are different; in Germany and Poland it is 4 ft. 8½ in. whereas in Russia it is 5 ft.; this meant there could be no through movement in bulk, as the locomotives, carriages and wagons were largely unsuitable. It is known that as the Germans advanced into Russia they converted the lines in the territory occupied to the German gauge and provided the necessary locomotives and rolling stock, but this could not be carried out during the stress of battle. It is also known that to a limited extent the Germans and the Russians had built wagons with

interchangeable axles capable of running on both gauges, but it is probable that until the gauges were standardised, most of the heavy military traffic had to be transhipped at the break-of-gauge stations.

As the Russians advanced into Germany the same problem would arise. Think what is likely to be required for such movements. In Great Britain the North African expedition (that is, apart from the work required beforehand) took 440 special troop trains and 1,150 freight trains over a period of days. Dunkirk required 620 special trains to move 320,000 troops. The first evacuation of children from London needed 4,349 trains to convey 1,500,000 passengers. "D" Day required no less than 24,459 special troop, ammunition and stores trains. While these movements were in progress normal work had to continue.

Capital Employed

In Great Britain about £3½ thousand millions is employed in public transport. This total includes £1,200 millions for the railways. It would have cost far more than this to replace them in 1939, and today it would cost still more. For the £3½ thousand millions we have the railways, the tramways and trolley vehicles, motor vehicles and equipment, the highways, docks, coastwise shipping, canals and internal air services. The number of persons employed in these transport services in 1939 was about 1½ millions.

There has never yet been a general scheme of development embracing all these forms of transport, but we are hoping that this will be rectified after this war. One of the reasons why this is necessary in the national interest is the heavy initial expenditure which is required in the track or road-way, which makes public transport different from other forms of enterprise. An ordinary company engaged in buying commodities and selling them, after conversion, into retail goods, may turn over its capital twice, four times, or six times a year. But a railway, for example, will only do this once in several years; in Great Britain in 1938 it was at the rate of once in six years, in 1928 once in five years, and in 1913 once in eight years.

The preponderance of railway capital in ratio to annual receipts is mainly due to heavy initial outlay on the track or road-way. This makes it essential that if public transport is to be cheap it must be planned as a whole. An example will perhaps explain this more clearly. In the extreme north of Scotland there are certain lines of railway, connecting with the main lines to the south, which serve important strategic points. In this war, as in the last, these railways are vitally important, and the traffic passing over them is several times greater than in peacetime. Between the wars the policy of building roads parallel to them made them unprofitable and it would have been more economical to have removed them than to have kept them in existence, yet had that been done, they would not have been available for war needs. The only way to deal with a problem of this kind is to plan the facilities as a whole.

In these days, defence requirements must play a large part in the planning of transport facilities; but this is an over-riding matter, which must be settled first of all by Parliament. It is fairly certain, whatever happens in the international field, that this country must maintain its strength

after the war, and for this transport is vital. Various questions arise, such as, shall we, in the event of a future war, need to import petroleum, as in this war? What is likely to be the effect of a future war on general electrification of the railways?

Ideally, alternative facilities, beyond those required to move a given volume of traffic and a reserve for contingencies, may not be justifiable, but we have seen in this war, particularly with the railways, that the duplication of lines has been a great help in solving new supply problems. These strategic questions cannot be ignored by the Government.

From the requirements of transport for defence, I should like to say something about transport design. Only when the purpose or function of transport is decided is it possible to determine its form. The one precedes the other. It is apparent that in determining the form of a transport system, the parts must realise the whole, and the whole must be properly conceived if there is to be economy, efficiency and convenience in carrying out its function. At the same time the importance of good appearance must not be overlooked, not only for its enlightening effect upon those who pass by the transport property, but also for its effect in inducing them to pass inside.

Division of Duties

Now, whose duty is it in a transport organisation to conceive this whole and to see that the parts fit attractively into it? The architect and the civil engineer design the stations, structures, lighting and the permanent way; the mechanical and road motor engineers design the locomotives, motor vehicles and rolling stock; the traffic officers tell the engineers what they want, operate the trains and vehicles, keep the stations and depots tidy, are responsible for the advertisements and supervise the staff who have to deal with the public. The marine officer designs the ships; the hotels officer and the architect design the hotels. The responsibility for these various duties may differ in different undertakings, but broadly that is the picture. The aim is, in attaining usefulness for the purpose to be served, also to get harmony and attractiveness.

In the final analysis it is the function of the general manager to co-ordinate the parts into the whole. Obviously, it is no easy task; one can rarely see the whole, so widespread is the transport system. It is different with a compact organisation in one or a series of buildings or in a single area like London. Further, the requirements are so widely different—from, say, a freight depot in a northern city, to a terminal railway passenger station in London, or from a local bus service in South Wales to the Cornish Riviera Express. There is no more direct way of creating attractiveness than by pulling down and rebuilding. There is obviously no place to-day for many of the structures to be seen at railway stations throughout the country. First and third class waiting rooms, usually dismally fitted up and often with inadequate lavatory facilities, ought to be things of the past, to say nothing of many of the refreshment rooms. But if it were possible to pull down and rebuild, it does not automatically follow that the new buildings would be in harmony with the railway as a whole.

It is obvious to anyone that the London Passenger Transport Board has understood this. In the five years of the Board's existence to 1938 it had rebuilt 45 of its existing 181 stations and had added 11 new ones. In the process, there has been an idea behind it, which can be plainly seen in the general scheme. The results have been remarkably successful, and it extends in

* A lecture given at Morley College, London, on February 6, entitled "Transport and Communications," by Mr. A. J. Pearson, M.Inst.T., Assistant to the President, L.M.S.R.

other directions besides station improvements; although the task is in no way comparable with that of, say, a main-line railway, it is a first-rate example of the idea. Had the main lines been in the financial position of the L.P.T.B. in the years before the war, it is certain that much of the necessary rebuilding and modernisation of the stations would have been undertaken then.

Railway officers would be quick to say that it would not have stopped at that. All the time between the two wars there was a demand for economy; many improvement schemes had to be scrapped or postponed; the test of immediate net revenue was paramount. We must therefore look to the future to secure for the railways that stability which is so essential for development.

Track Renewals

As it was, between 1923 and 1939 the main line railways had to concentrate most attention on the permanent way and rolling stock. Out of a total expenditure of £450 millions on renewals and improvements they spent £173 millions on rolling stock and £150 millions on the track—which is over 70 per cent. of the total on these two items. Between 1923 and 1939 no less than 21,000 miles (three-fifths of the track concerned) were renewed completely; further, there were considerable advances in engineering and metallurgy. Electric or oxy-acetylene welding, for example, increased the "life" of the switches and crossings and produced a saving in new rails. The medium manganese rails gave better wear than the higher carbon rails which were used in the last war; and the rail life was extended by the sorbitor process. This increases the life of the rail by the hardening of the steel. Another factor leading to a higher standard of maintenance was the extension of the systematic and measured processes for packing ballast under the sleepers, in place of shovel packing.

Two of the most interesting of recent railway developments in this country are the use of concrete sleepers and flat bottom rails. These are still at the experimental stage; the former have been stimulated by the shortage of timber and they make a quieter road, the latter may be quieter and cheaper to maintain. Another new idea is the construction of complete railway bridges and stations in sections, which can be brought to the site and assembled in a very short time. Just as quickly they can be removed and replaced when they are outmoded.

Between the wars the railways secured a decrease in the cost of the maintenance of rolling stock by 15 per cent. Prices were lower, but there was a 5 per cent. increase in engine miles. It is here perhaps that the most marked technical advances were achieved. These were in the standardisation of parts, internal streamlining of locomotives, laboratory research, concentration of repair work, improvements in design, improvements in manufacturing methods. Standardisation, for example, reduced the locomotive stock by 4,300 and the miles run by each locomotive increased by 21 per cent. per annum. Fewer and better did more work at less unit cost.

Value of Research

Many of these improvements were secured by active research, which will be as important in the future as it has been in the past. It is not generally known that the British railways normally spend very large sums on research—a rough estimate is in the region of £1,000,000 a year. This expenditure includes scientific research proper and also work performed by the railway

engineering and traffic departments which comes inside true research and experiment. In recent years the railways, through their scientific staffs and laboratories, their membership of various research associations and the Department of Scientific & Industrial Research, and by their subscriptions to special investigations, such as that on soil mechanics, have been able to apply scientific research to a number of their main problems.

One of the most important features of transport control are the telegraph and telephone services. In the ten years before the war teleprinter circuits were superseding needle telegraph circuits, thereby reducing the cost of training operators and doubling the output of work. The modern transport telephone is a thing to marvel at. On the L.M.S.R. we have two complete telephone systems which are largely independent of each other. The first is a network of trunk lines between the principal centres and local lines, which is linked to the Post Office telephone organisation through the railway exchanges. The second is a "control" telephone system which is almost entirely confined to use for traffic operating purposes. By this means every day of a seven-day week, throughout the war, the operating officers have been in constant touch by "control" telephone over hundreds of miles of line—the whole railway system of the four groups being one for the purpose.

In addition to improved telegraphs and telephones, loudspeaker equipment—a comparatively recent development—will probably find extended use in future. The extension of wireless to trains was tried many years ago and did not get far. War-time progress, however, may throw up improved processes, and there is also television to bear in mind. Some railways have used wireless for operating purposes to good effect during this war. Up to the outbreak of war, signalling methods had improved rapidly, due largely to the use of electricity for the operation of signals and switches, colour light signals, automatic signalling and track circuits. After the war experiments will be taken up again, and there are bound to be further developments in all kinds of ways.

Motive Power Competition

The future is likely to see great competition for supremacy between the steam locomotive and electric and diesel traction, and the choice will need very careful judgment. It is proper that I should mention here the extension of electrification, particularly by the Southern Railway. That system, of course, was particularly suitable for its development by reason of its intense suburban passenger traffic and the proximity of the South Coast to London.

Most likely, further consideration will be given to the electrification of the railways. Already there are 2,458 miles of track electrified, and about £50,000,000 has been spent on this. Whereas it is possible to introduce a small or localised urban or suburban scheme of electrification for passenger services, this is impracticable for the main lines except to meet a particular physical difficulty. A scheme of main-line electrification must be a large one and must cater for all passenger and freight traffic. Further, it must by its nature be undertaken by electric locomotives and not multiple-unit vehicles, as with most suburban schemes. The difficulty of dealing with wagons, quite apart from technical considerations, illustrates the need for this. As to current, overhead transmission at 1,500 volts D.C. is the most economical method and the least dangerous. The Manchester, South Junction & Altrincham

section of the L.M.S.R. and L.N.E.R. is an example of this type, as also is the Manchester-Sheffield scheme of the L.N.E.R., which has been delayed by the war.

Probably the minimum stretch for a scheme of main-line electrification is 200 miles. At the same time important branches would require to be converted to electricity, otherwise the change-over to and from these steam-operated sections would cause delays. It would also be necessary to convert some sidings, but it would probably be found that larger siding groups, marshalling yards and lines in sheds would be better dealt with by diesel-electric locomotives on the method now employed. Minor places could be operated by small locomotives, whether coal, oil or electric. It is possible that from a purely railway working point of view, given the national policy for transport envisaged, there is a case for large-scale electrification in this country after the war.

Because of the fuel and rubber shortages during the war, the curtailment of road transport has been drastic. Not only have the normal road passenger services been reduced, but half the bus stops, all the long-distance coaches and many of the shorter services have been cut out. The restriction of road goods transport has been even more severe. But before the war these sections of the transport industry were highly developed. For example, the public road passenger services throughout the country ran 1,500 million vehicle miles and carried 6,600 million passengers. It is hoped that after the war, with the development of transport as a whole, there will be closer co-ordination between each of the various forms of transport. The need for improved highways is obvious and the Government are already considering extensive schemes.

Under a general plan, these would be examined in relation to all other transport schemes, as, for example, it would obviously be no use thinking of developing alternative facilities parallel to a section planned for a new trunk road or for railway electrification and going ahead with each in isolation. One of the most urgent needs will be to provide new railway coaches and buses; as very few have been built during the war. New materials will be used in the construction of these where they are suitable; plastics are already used to some extent and they will probably be extended. Aluminium has been in use for many years. The aim will be in the future, as in the past, to reduce the weight as much as possible.

Buses and railway trains should as far as possible start from the same stations, and there might be bays where the buses could stand and pick up passengers or intermediate places not served by railway, as the country stations would be closed. These joint stations would thus be travel centres and deal with all types of travel. They would be ample in accommodation and would have attractive refreshment facilities. At the main terminals there would be hotels, and, where justified, underground rail services for suburban passengers. It is also my hope that the day will come when tickets will be inter-available by rail and road and that there will be through bookings from door to door.

Freight services of all kinds would be interworked to give more economical loading and quicker delivery with less damage. The big thing of the future will be door-to-door transport; whether further mechanical devices are possible to make the transfer from road to rail quicker, smoother and safer remains to be seen. Larger railway

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ALTITUDE - FEET
ALTITUDE - FEET

British Work on Persian Railways, 1942—Part 2*

The achievements and difficulties of the R.Es. during the 15 months in which they laid the foundation for effective aid to Russia

BEFORE the arrival of the British personnel in Persia, the following locomotive stock was owned by the State Railways:—

- 49 German 2-8-0s with double bogie tenders.
- 16 German 2-10-0s with double bogie tenders.
- 12 Swedish 2-8-2s with double bogie tenders.
- 4 Beyer-Garratt 4-8-2+2-8-4 articulated engines.
- 5 Beyer-Peacock 2-8-0s with double bogie tenders, and 20 odd shunting locomotives.

All the 65 German engines needed immediate repairs, as their fireboxes, tubes, stays, motion, and rods were all in poor condition because of lack of maintenance. The 12 Swedish locomotives were all out of service, awaiting modifications necessitated by excessive slipping. The four Beyer-Garratts were also out of commission as they required new fireboxes, longitudinal cracks having developed across their tubeplates. The 2-8-0 Beyer-Peacock locomotives had been excellent engines, but needed overhaul.

While the R.Es. were in charge the following additional locomotives were received from abroad:—

- 39 coal-burning "W.D." (British) 2-8-0s.
- 104 oil-burning "W.D." 2-8-0s.
- 96 oil-burning U.S.A. 2-8-2s.
- 6 German 2-10-2s diverted from China.
- 3 Kitson-built 2-6-4 and 4-6-4 tank engines from the Kowloon-Canton Railway, and
- 22 0-4-0 diesel shunting engines from the U.S.A.

These engines were unshipped at either (a) Abadan or (b) Khorramshahr by the R.Es. with the aid of the Anglo-Persian Oil Company's 200-ton floating crane, and taken to Ahwaz (a) by barge or (b) "dead" by rail, there to be erected and handed over to Traffic by the Railway

Workshop Company. Coal for the first batch of "W.D." 2-8-0s also had to be shipped from the United Kingdom.

The two German types of engine proved to be somewhat short of steam on a long hard pull, and were far too complicated for the elementary conditions of maintenance and working in Persia. Their frames also were weak, particularly at the front end, and their buffer beams extraordinarily so.

The "W.D." engines were not powerful enough for the more exacting sections of road in Persia, being unable to maintain steam against the constant use of two injectors. The conversions from coal to oil burning carried out in the U.K. were unsatisfactory in respect of the air intakes, with the result that damage to the firedoors and their protectors was quickly sustained. Similar conversions in Teheran shops gave much better results and obviated these faults. The superheater tubes proved to be too long and of too-thin material for oil-firing, and failed *en masse* in the fierce heat of the oil flame. There were many injector failures in the heat of summer due to the temperature of the tender water rising to 100°. Other faults included inadequate steam sanding gear, which later had to be modified as air sanding. Collectively, they caused great trouble and many engine failures, and threw a great overload on the shed staffs.

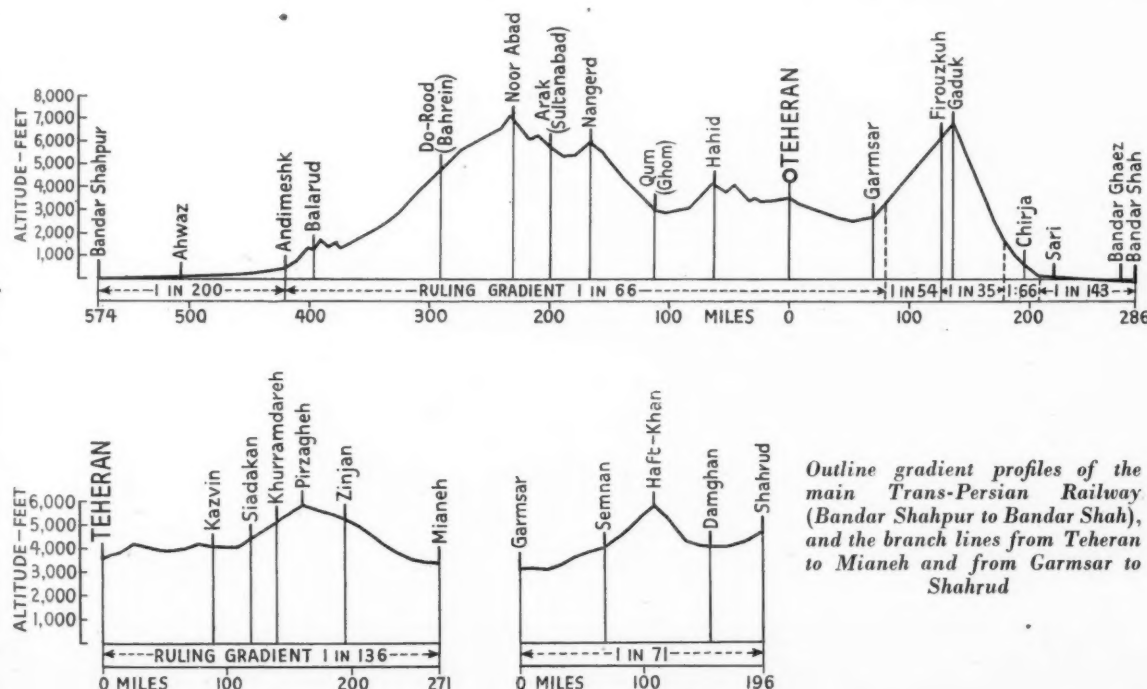
The U.S.A. 2-8-2s were basically sound and well suited to conditions in Persia. They were suitably designed for oil burning and had generous free-steaming boilers, but they also had their faults. All the metals used in them were of poor quality, leading to the expectation of

heavy maintenance costs in a short time. Their drawgear was very weak, big-ends were of a design unusual even for American practice, and, being prone to overheating, had to be modified. Cross-heads seized, and their sanding also had to be altered from steam to air; the steam brake gear was inefficient until modified. Parts supplied by different makers were found to be not interchangeable, lengths of connecting rods, for instance, differing by as much as $\frac{1}{4}$ in. Practically the whole of the locomotive stock—original and additional—needed a vast amount of workshop attention.

Inadequate Repairs and Stores

The central workshops at Teheran were, on the whole, well laid out and equipped with modern machines each having individual drive, and a good 100-ton overhead crane was installed. The smiths' shop, foundry, and boiler shop were, however, too small, and boilers were not expected to be lifted in the latter. The spares situation in the Stores was deplorable, few of the right things and many wrong items being stocked. There was no shopping system in force, and only 12 engines had been turned out during 1940; this had mattered little then, as there were ample locomotives available for the light traffic handled at that time.

Under the British R.Es., the programme was to overhaul 65 engines a year, and this would have been worked to but for (a) the shops having to help the shed staffs in their great trouble with the "W.D." engines, (b) the modifications required to the American locomotives, and (c) the Ahwaz engine-erecting detachment having to be reinforced at the expense of the central workshops personnel. As it was, most of these overhauls were carried out, all of them entailing lifting and being mostly of the "heavy intermediate" category. Thanks to assistance locally in Teheran, from the Arsenal and other sources, spares for the



Outline gradient profiles of the main Trans-Persian Railway (Bandar Shahpur to Bandar Shah), and the branch lines from Teheran to Mianeh and from Garmsar to Shahrud

German engines were obtained, though not in any quantity until after the Americans took over.

Meanwhile, early in 1942, the outstation maintenance staffs were struggling to keep pace with the many engine failures and running defects resulting in and from (a) excessive slipping of almost all engines, (b) tube and firebox troubles with the German engines, and (c) steaming difficulties with the "W.D." locomotives. Engines frequently ran out of water and had either to run light to the nearest watering station or be assisted by relief engines. The German 2-8-0s also had a habit of running short of oil fuel. As a result, runs booked to take 8½ hr. were taking from 15 to 24 hr., with corresponding increases in turn-round times, producing shortages of engines. Cumulative deterioration in locomotive maintenance was inevitable.

Hot-weather Troubles

With the advent of summer, injector troubles became increasingly serious. Leakage of oil from wagon axleboxes further increased slipping, so that more trains had to be banked. The crews were often 20 to 24 hr. at a stretch on the footplate, and the British drivers and firemen suffered from heat exhaustion. By July, 1942, matters had become so serious that the crews frequently had to ask permission of Control to extinguish fires and snatch a few hours' sleep before they could take their trains forward. Finally, therefore, drastic measures had to be taken, and the loading of trains had to be reduced. This immediately had the desired effect of speeding up traffic and eliminating engine failures. A rearrangement of engine runs, with better distribution of engine turns, also relieved the pressure on the worst section of line between Andimeshk and Do-Rood.

At this point, unfortunately, the worst epidemic of superheater failures intervened, and the position at Arak became serious. At the end of August, 1942, that depot had, on an average, 12 or 13 engines out of service for element or other repairs, and only 3 or 4 of the German locomotives were fit for main-line duty. This left only 8 or 9 engines available to cope with traffic demands requiring at least 15 engines daily. As no engines could be spared from other depots, recourse had to be made to extending the engine runs of neighbouring sheds, so as to help out Arak; repair personnel at that shed was also increased; so that three shifts of welders could work round the clock.

Failure of Water Supplies

To add to the difficulties of the staff at that unfortunate depot, the water supply, which had caused anxiety for some time, failed completely. Consequently, boiler-making, fitting, and wash-out staff was transferred to Ghom (Qum), and Arak engines had to be run the 90 or so miles to that station and the same distance back for washing out and repairs. Meanwhile, Arak was supplied by three water trains of travelling tanks from neighbouring sources of supply until the strain on them, in turn, caused them to run short. These trains had then to run from and to Do-Rood and Bisheh, 90 and 100 miles distant respectively. Despite these troubles, and continued superheater failures, this depot managed to maintain an average of four trains each way daily, as well as the mail which ran four times each way weekly, and also was double-headed. Further deterioration of the superheater position in October necessi-

tated the transfer of the mobile workshop train to Arak, but by the beginning of December the situation was at last under control.

At Teheran and on the easier sections of line these difficulties did not arise to the same extent, and on the flatter grades in the Ahwaz area the coal-burning "W.D." engines worked well until July, handling 850- to 1,000-ton trains. Thereafter, the great heat made their firing, even by Persian firemen, impossible, and they were laid up until cooler weather came.

Carriage and Wagon Chaos

As already indicated, the carriage and wagon position in Persia was little better than the locomotive. Very scant organisation existed for the inspection and repair of vehicles when the R.Es. arrived, and there were only two wheel-turning lathes on the railway. As the Persian brakemen habitually screwed down their brakes and went to sleep, tyre flats were common, and re-turning could not be done quickly enough. In fact, in 1941, only from 18 to 30 wagon repairs of all kinds were being carried out each month. The British troops quickly established a regular sick line and systematic repairs, and some 130 vehicles were handled monthly, thanks to organisation and proper supervision. With the advent of the American wagons, however, new problems arose, as they were quite unsuited to conditions in Persia. First and foremost, their chilled cast-iron wheels seldom survived more than one trip from the ports to Teheran before they failed, due to cracks developing and extending through flange and tread, and often even into the wheel disc. Also, as previously mentioned, their couplings were astonishingly weak, and at least one serious accident was caused by their failure.

The Persian maintenance of outdoor machinery was chaotic, as no one would accept responsibility for it. A satisfactory system was soon worked out by the British Transportation Directorate, but, unfortunately, it proved in practice not the success it should have been, because its operation had to be left in Persian hands, there being no other staff available.

Faults in Locomotive Depots

Proper organisation at outstation locomotive depots was originally lacking, and, due to shortage of staff, it was some time before any very considerable improvement could be made by the R.Es. There was a marked shortage of water columns and fuelling points, and those that existed were often so placed that engines using them blocked the entire depot; in other places they were on dead-ends, necessitating unnecessary shunting movements. There were no inspection pits except in the shed buildings, and the latter were, naturally, as often as not occupied by engines under repair or washout. Generally, there was a single road bottle-neck leading to the shed—all sheds except two being of the straight layout—and derailments at the master points, therefore, blocked the whole yard. There was, moreover, usually only one outlet to the main line or traffic yard. Office and other buildings were inadequate and badly laid out. The official in charge frequently had his office right away from the loco. yard, and on the far side of the main line from it.

The Directorate made recommendations for the elimination of all these shortcomings, and standard shed administrative blocks of buildings were designed to include either a power-house, stores, and

office accommodation combined, or one or two of these, as required. The stores accommodation and machinery equipment were usually reasonable, but the latter was in very bad order. There was no locomotive weighbridge in Persia.

Low Standard of General Organisation

From these notes it will be seen that, at the time of the taking over of the line by R.Es., the whole organisation was in parlous condition. Persian staff and employees were only half trained in their respective duties, and it may be added, no attempt appeared to have been made at keeping accounts, either departmentally or as a whole. All equipment was shockingly maintained throughout, and the policy seemed to be to run everything to death and then buy new. This applied particularly to the locomotives, where boiler maintenance, scaling, and cleaning out was a most haphazard business; witness the Beyer-Garratts, recent modern engines, ideal for the conditions, all on the dead line. The whole policy with regard to locomotives had been hopelessly wrong from the beginning. Elaborate—in some cases three-cylinder engines—had been purchased, whereas the conditions demanded a simple and rugged engine with a very generous boiler, designed with ample wash-out facilities. Water, as well as being so scarce, is universally bad in quality for locomotive purposes. Probably a 2-10-0 locomotive could be designed as a standard type for the entire system. The administration, however, would tolerate only the most modern and complicated machines and, as an example of this, at the outbreak of war, actually had on order from Beyer, Peacock & Company, 24 three-cylinder 2-10-2 streamlined engines and tenders.

Executive positions in the administration were held by Swiss, Czech, and other Central European nationals, besides Persians of high military rank, and the result was far from happy.

Increased Traffic Achieved

At the time of the arrival of the first British Operating Company in December 1941, the Persians were working northwards one train a day only. Yet, despite all the serious difficulties and handicaps encountered, this was rapidly improved on, and the approximate quarterly net tonnages hauled north during 1942 were as follows:—

	1st Quarter	2nd	3rd	4th	Net tons
	88,000
	106,500
	122,000
	143,000
					459,500

In the early part of 1943 the R.Es. handed over entirely to U.S.A. troops who arrived in their thousands together with 56 0-6-0 + 0-6-0 1,000-h.p. diesel electric locomotives. As a result of the greatly superior manpower of the American organisation as compared with the British, and the introduction of the 56 diesel-electrics and the 96 2-8-2 steam locomotives, which had only just begun to come into regular service, the Americans were able to increase the traffic very considerably. For the month of September, 1943, they despatched an average of 5,400 net tons daily to the Russians, and ten months later, a record average of 5,528 tons a day were sent to Russia by rail.

It should be remembered, however, that the Americans had the foundation laid by the British, on which to build up the much larger and lavishly-equipped organ-

War Scenes on the Trans-Persian Railway



Train headed by a Beyer-Garratt locomotive entering Sorkhabad Station (near Gaduk) on the Northern Section of the Trans-Persian State Railway operated by the Russians



War supplies being hauled between Ahwaz and Andimeshk on the Southern Section



Russian-operated train on the last section, between Sari and the port of Bandar Shah on the Caspian Sea



British-built 2-8-0 locomotive heading a train near Ahwaz

sation. In dealing with the teething troubles of the changeover from peacetime to war conditions, it was no mean feat for the British Transportation troops to handle eight times the volume of pre-war traffic within a year of their going to Persia, considering the resources available and the many obstacles encountered.
(Concluded)

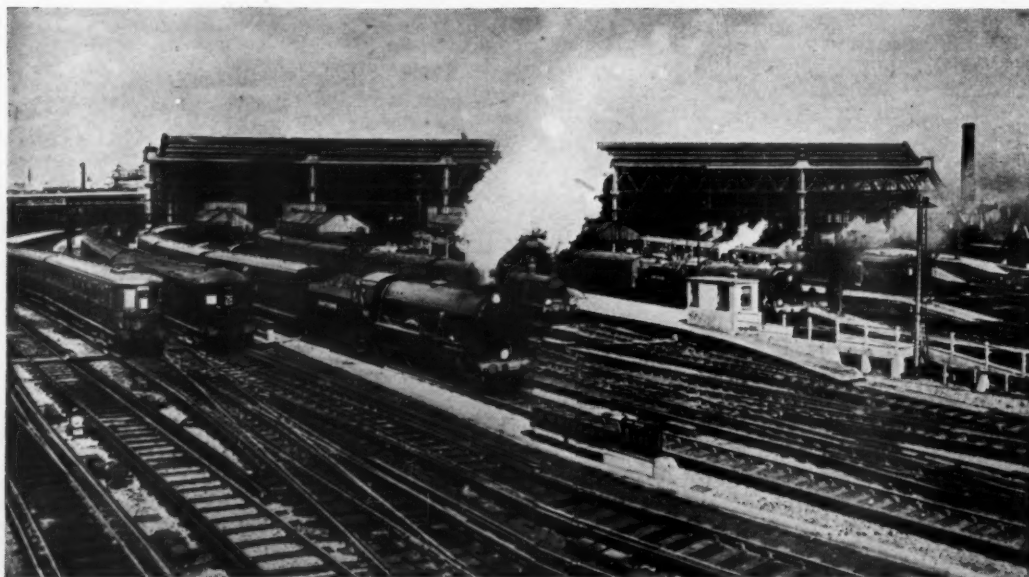
RAILWAYS IN RETROSPECT AND PROSPECT

(Concluded from page 158)

wagons, particularly for coal, are obviously a step in the right direction, as they reduce the cost of transport, but a governing factor is the capacity of the colliery screens. Another need is for the pooling of privately-owned wagons with those owned by the railways. Those canals which are required for freight transport will also need a good deal of money spending on them to bring them up to date, and the same is true of many of the docks and harbours. We must also not forget air transport, though it is probable that its main function will be to provide services across stretches of sea, such as to the Continent, Channel Islands, Ireland, and the islands of Scotland.

I must emphasise again that much of this will not be possible unless there is a settled plan for transport when the war is over. It is not my purpose here tonight to discuss what that plan should be. I will confess that my greatest fear is that it will not be decided on its merits, as a technical problem to secure for the country efficient and cheap transport. The aim of the nation after the war is to provide full employment for its citizens. To achieve that aim good transport is essential. This will be provided if there is an understanding of the needs of transport, to enable it to give the public the service that it requires.

Outside Waterloo Station, Southern Railway



Trains entering and leaving Waterloo Station. Between September, 1940, and May, 1941, there were 92 bombing incidents affecting the running lines between Waterloo and Queens Road (2½ miles), which made that stretch the most bombed section of line in London

[Block courtesy]

[Southern Railway Magazine]

RAILWAY NEWS SECTION

PERSONAL

IRISH TRANSPORT COMPANY

The following appointments have been made by the Irish Transport Company:—

Mr. T. F. Brazil (formerly Commercial Assistant, Great Southern Railways) to be Commercial Assistant.

Mr. C. F. Tyndall (formerly Running Superintendent, Great Southern Railways) to be Running Superintendent.

Mr. D. Kirwan (formerly Operating Assistant, Great Southern Railways) to be Operating Superintendent.

Mr. J. H. P. Lloyd, Locomotive Works Manager, Stratford, L.N.E.R., has been elected a Member of the Institution of Mechanical Engineers.

Mr. R. T. G. French, C.B.E., Secretary to the Electricity Commissioners since their appointment in 1920, has retired. He is succeeded by Mr. A. E. Marson, formerly Assistant Secretary. Mr. C. J. Hornsby has been appointed Assistant Secretary.

We regret to record the death on February 11, at the age of 87, of Sir John Scurrah Randles, who was a Director, up till 1923, of the Furness, Cleator & Workington Junction, and Cockermouth, Keswick & Penrith Railway Companies.

SOUTH AFRICAN RAILWAYS & HARBOURS

Mr. N. A. Paterson, Revenue Accountant, has been appointed Expenditure Accountant.

Mr. H. R. Stamper, Assistant Superintendent (Operating), Johannesburg, has been appointed Superintendent (Operating), Durban.

We regret to record the death on February 6, at the age of 78, of Mr. Charles Kingston Everitt, Chairman of Edgar Allen & Co. Ltd.

Mr. Percy Frederick Hodgson, whose death, at the age of 76, was recorded briefly in our last week's issue, was the son of the late Mr. Charles Hodgson, who was a well-known Managing Director of Saxby & Farmer Limited, and who took a prominent part in the early development of signalling in this country, in India and in other parts of the world. Mr. P. F. Hodgson, who retired from the signalling industry about 25 years ago, was trained under his father at the Kilburn Works of Saxby & Farmer Limited, and then went to Canada as Signal Engineer of the Grand Trunk Railway. He returned some years later to assist in the management of Saxby & Farmer Limited. When the works were removed to Chippenham in 1903, after the taking over of the business of Evans O'Donnell & Co. Ltd., he became Works Manager there; but he returned to the London offices, then in Westminster, when his father's health began to fail. He was made a Director in 1907. Shortly before Mr. Charles Hodgson's death in 1912 he was appointed to act with, and then to succeed, him as Managing Director, but he returned to Chippenham towards the close of the last war as Director & Works Manager, which position he retained until he retired. An editorial note appears elsewhere in this issue.

Mr. R. de K. Maynard, lately Chief Operating Superintendent, Madras & Southern Mahratta Railway, who, as recorded in our November 10, 1944, issue, has been appointed General Manager, entered the service of the former North Eastern Railway in 1908 as a traffic apprentice, and underwent training in station, yard, district and headquarters offices at Leeds, Hull, York and elsewhere. He subsequently was appointed Assistant Traffic Superintendent, Madras & Southern Mahratta Railway, and

The following announcement appears in the Supplement to *The London Gazette* dated January 19, under the heading of Territorial Army—Royal Engineers: Engineer & Railway Staff Corps:—

Major D. E. Cameron (62377) to be Major, November 9, 1944, with seniority March 3, 1934 (substituted for the notification in *The London Gazette* (Supplement) dated November 14, 1944).

Major Cameron is Dock Mechanical Engineer, Swansea & Port Talbot, Great Western Railway.

Mr. R. P. Silcock has been elected a member of the Mersey Docks & Harbour Board, in place of the late Mr. E. G. Brownbill.

Major Geoffrey G. Ommanney, Development Commissioner, Canadian Pacific Railway, has retired, and has been succeeded by Mr. Gordon M. Hutt, previously Assistant Development Commissioner at Winnipeg.

We regret to record the death on February 10, at the age of 75, of Mr. William Walker Lackie, C.B.E., an Electricity Commissioner from 1920 until his retirement in 1934.

At the annual general meeting of the SKAL Club of Birmingham, the following officers were elected for 1945:—President: Mr. G. W. Murrell (Canadian Pacific Railway); Vice-Presidents: Messrs. J. P. Savage and D. M. Sinclair (Birmingham & Midland Motor Omnibus Co. Ltd.), and Mr. F. T. Walker (Escombe, McGrath & Co. Ltd.); Chairman: Mr. W. Carpenter (W. Carpenter & Co. Ltd.); Vice-Chairman: Mr. G. Allen (Allenways Limited); Honorary Secretary: Mr. F. T. Ranger (Cunard White Star Limited); Honorary Treasurer: Mr. H. W. Raybould (Maurice Cooke & Co. Ltd.); Honorary Press & Programme Secretary: Mr. F. Barrett (Great Western Railway).

Dr. C. C. Paterson has been awarded the Faraday Medal by the Institution of Electrical Engineers. Dr. Paterson is a Director of the General Electric Co. Ltd.



Mr. R. de K. Maynard

Appointed General Manager, Madras & Southern Mahratta Railway

sailed for India in November, 1913. He was promoted District Traffic Superintendent in March, 1918, and Deputy Traffic Manager in May, 1929. Mr. Maynard acted as Deputy-Agent on special duty in 1930-31 for the purpose of applying the Hours of Employment Regulations to the staff of the M.S.M.R. In 1931 he was appointed by the Railway Board to represent company railways on the Railway Retrenchment Sub-Committee of the Retrenchment Advisory Committee, Government of India. Mr. Maynard was promoted to officiate as Chief Operating Superintendent in January, 1935, and later was confirmed in that appointment, which he held until September 8, 1944, when he took charge of his present office.

Mr. J. G. Arnott, Foundry Manager of the Clyde Alloy Steel Co. Ltd. for the past 10½ years, has joined the staff of G. & J. Weir Limited as General Manager of the Holm Foundry, Cathcart, and Argus Foundry, Thornliebank, in succession to the late Mr. Norman McManus.

Mr. S. E. Tyrwhitt, Assistant Divisional Locomotive Superintendent, Newport, Great Western Railway, who, as recorded in our February 2 issue, has been appointed Divisional Locomotive Superintendent, Cardiff, entered Swindon Locomotive Works, G.W.R., as a pupil in 1904, and afterwards was employed in the drawing office there from 1907 to 1910. In the latter year he joined the staff of the Superintendent of the Line at Paddington. During the war of 1914-18 he served in France with the Royal Engineers, T.A. He was for more than two years with the 1/1 Wiltshire Fortress Company, R.E., T.A. (afterwards 565 (A.T.) Company, R.E.), which was composed almost exclusively of men from Swindon Works. During the final advance through France Mr. Tyrwhitt was Bridging Officer, 6th Corps. From 1919 to 1921 he was Outside Traffic Manager, Ebbw Vale Steel, Iron & Coal Co. Ltd. In the latter year he returned to the drawing office at Swindon, G.W.R., for a few months, and then in 1922-23 was Assistant General Manager, and afterwards General Manager

of the Festiniog and Welsh Highland Railways. After a short period at Paddington in the Office of the Superintendent of the Line, he was appointed, in November, 1923, Assistant to Divisional Locomotive Superintendent, Barry & Cardiff. He became Assistant Divisional Locomotive Superintendent, Newport, at the end of 1924. In 1925 Mr. Tyrwhitt joined the Supplementary Reserve of Officers, Royal Engineers, and raised 152 (G.W.) Railway Operating Company, which he commanded until 1935.

Mr. W. E. Baines, Divisional Locomotive, Carriage & Wagon Superintendent, Newport, Great Western Railway, who, as



Mr. W. E. Baines

Divisional Locomotive Superintendent, Newport, G.W.R., 1933-45

recorded in our February 2 issue, has retired, entered the company's service at Swindon in 1901, and, after serving his apprenticeship in the locomotive shops, was retained in the drawing office. After serving in His Majesty's Forces in France from 1915 to 1919, he was appointed in 1920 as Assistant Divisional Locomotive, Carriage & Wagon Superintendent at Newport, and in 1922 was transferred to Wolverhampton in a similar capacity. In 1924 Mr. Baines was transferred to Neath as Divisional Locomotive, Carriage & Wagon Superintendent and remained there until January, 1933, when he was transferred to the corresponding post at Newport. Mr. Baines has been keenly interested in ambulance work, and was invested as a Serving Brother of the Venerable Order of the Hospital of St. John of Jerusalem in 1936.

Mr. H. R. Newman has been appointed General Manager of the Engineering Departments of the Butterley Co. Ltd.

We regret to record the death on February 4, at the age of 59, of Mr. Kenneth Lindsay Wood, M.I.E.E., late Engineer-in-Chief, Cable & Wireless Limited.

Mr. J. Blakiston, A.M.I.Mech.E., of Modern Foundries Limited (a subsidiary of William Asquith Limited), has been granted leave of absence to visit important Indian foundries on special duty. Mr. Blakiston is President of the West Riding Branch of the Institute of British Foundrymen.

Mr. C. L. Simpson, A.M.Inst.C.E., Divisional Locomotive Superintendent, Bristol, Great Western Railway, who, as recorded in our February 2 issue, has been appointed Divisional Locomotive Superintendent, Newport, was educated at Blundell's. He joined the G.W.R. in 1909 and was employed in the shops at Newport, Dock Street. He was transferred in 1911 to Swindon, where he gained experience in the factory, test house, and drawing office. In September, 1914, he enlisted in the Public Schools Battalion, Middlesex Regiment, and in 1915 he took a commission in the Royal Engineers; he served in France with the 94th Field Company, R.E., 19th Division, and other units, and subsequently



Mr. C. L. Simpson

Appointed Divisional Locomotive Superintendent, Newport, G.W.R.

attained the rank of Captain. Before he went to Bristol in 1920 as Inspector, he had gained some footplate experience. In 1922 he was appointed Assistant to the Divisional Locomotive Superintendent at Bristol, and in 1933 became Assistant to the Locomotive Running Superintendent & Outdoor Assistant to the Chief Mechanical Engineer at Swindon. Mr. Simpson was appointed Divisional Locomotive Superintendent, Bristol, in July, 1939.

INDIAN RAILWAY STAFF CHANGES

Mr. C. A. K. Bradley, Deputy Chief Mechanical Engineer, B.A.R., has been permitted to retire from Government service.

Mr. R. A. Dickenson has been appointed to officiate as Chief Mechanical Engineer, M.S.M.R.

Mr. E. M. Egan, Divisional Superintendent, Rawalpindi, N.W.R., has been appointed to officiate as Chief Commercial Manager, in place of Mr. J. W. Ogle, E.D., granted leave, preparatory to retirement, as from February 3.

Khan Bahadur F. M. Khan, the Khan of Shewa, Officiating Deputy Chief Commercial Manager, N.W.R., has been appointed to officiate as Divisional Superintendent, Rawalpindi.

Mr. S. C. Sirkar, Divisional Commercial Officer, Lahore Division, N.W.R., has been appointed to officiate as Deputy Chief Commercial Manager.

Mr. G. A. Rowlerson has been confirmed permanently as General Manager, O.T.R.

Mr. A. I. Walker has been confirmed permanently as Traffic Manager, O.T.R.

Mr. William Harris Victory, Assistant to Chief Docks Manager, Cardiff, Great Western Railway, who, as recorded in our February 2 issue, has been appointed General Assistant to Chief Docks Manager, Cardiff, was born at Newport, Monmouthshire, and entered the service of the Alexandra (Newport & South Wales) Docks & Railway Company, in the General Manager's Office, in 1901. He became Secretary to the General Manager in 1912, and in the next year was selected for special training in dock and railway work. In 1915 he was made Chief Clerk, Coal Shipping & Traffic Office, and in 1918 was transferred to the General Manager's Office, where he was placed in charge of a section. In 1922,



Mr. W. H. Victory

Appointed General Assistant to Chief Docks Manager, Cardiff, G.W.R.

when the line was amalgamated with the Great Western Railway, Mr. Victory was appointed Principal Clerk to the Commercial Section in the new Chief Docks Manager's Department inaugurated by the G.W.R. Soon afterwards he acted as Secretary to the joint committee set up between the company and the traders in respect of delays in coal shipments. In 1926 he was appointed Chief Clerk, Chief Docks Manager's Office, and in August, 1938, became Assistant to the Chief Docks Manager. Mr. Victory has represented the G.W.R. on the Newport Harbour Commission for some years, and was Chairman of the commission for 1940-41. He is one of the company's representatives on the Newport Chamber of Commerce, and is President of that body for this year.

Mr. H. T. Dutfield has been elected Chairman of the new Road Haulage Association, and Messrs. B. G. Turner, Charles Holdsworth, Isaac Barrie, and J. A. M. Bright, Vice-Chairmen. Mr. R. W. Sewill is the Director.

Specialoid Limited announces the following appointments in connection with its Technical Division:—

Mr. E. I. Brimlow has joined the company as Research & Development Manager.

Mr. L. M. Wyatt has joined the company as Production Metallurgist.

Mr. A. A. Cann, formerly Inspection Manager of the company, has been appointed Quality Engineer.

TRANSPORT SERVICES AND THE WAR—281

Civilian Air Raid Casualties in January

The Ministry of Home Security has announced the following figures of civilian casualties due to enemy action in the United Kingdom during January:—

Killed (or missing believed killed)	585
Injured and detained in hospital	1,629

The casualties are classified as follow:—

Killed (or missing believed killed)	Men	Women	Under 16
...	198	293	94
Injured and detained in hospital	470	931	223

Provincial Bus Services in Wartime

Much has been made in its prestige advertising of the provincial bus industry of the fact that one of the few things which the public still secures at pre-war prices is a ride on the vehicles of practically all the large bus undertakings (including the whole of the railway-associated group). The industry claims that, after more than five years of war, Great Britain still has a cheaper and more efficient passenger road transport system than that possessed by any other country in the world. The White Paper (Cmd. 6564) issued last November showed that many bus undertakings have had to carry from 30 to 50 per cent. more passengers than in 1938, while over the whole country the number of passengers carried has increased by almost one-fifth and the number of passenger-miles by one-third. This has been accomplished in spite of the loss through Government requisition of a considerable number of the buses operated in 1939.

Meanwhile, maintenance costs have soared. Materials and spare parts have gone up approximately 40 per cent.; fuel 50 per cent.; and lubricating oil 80 per cent. The wage bill for drivers and conductors is now almost 30 per cent. more than in 1939. Practically the only provincial fare adjustments have been the withdrawal in some cases (on orders from the Regional Transport Commissioners) of certain cheap facilities which were having the effect of increasing non-essential traffic. In peacetime the receipts from many company-owned bus services were less than the cost of operating. Today most services show a profit. All additional profits go to the State, while the fleets of buses are fast being worn out by the exceptionally heavy loading. After the war, companies will be faced with heavy expenditure for new buses. It is estimated that the shortage of vehicles will amount to some 20,000, and these will cost at the lowest estimate £40,000,000.

According to an official of the British Omnibus Companies Public Relations Committee, the ability of the companies to meet the heavy demands of war is attributable entirely to their wise pre-war planning. He said that the achievement was helped, too, by the fact that the companies had built up organisations capable of making smoothly the change-over to war conditions. Many vehicles which because of their age had been withdrawn from service in 1938 and 1939 and replaced by new vehicles were not scrapped, but were retained and held in reserve in case the worst happened. Despite their age, these buses had been on continual "war service" and had helped to maintain without a break and under the most harassing conditions the network of bus services so vital to the life of the nation.

Moscow-Warsaw Train Service

The Soviet News Agency reported on February 9 that trains were now running between Moscow and Warsaw.

Norwegian Passenger Train Suspension

It is reported that all passenger traffic on the Norwegian railways, with the exception of that on a few electrically-operated subsidiary lines, was banned by the Germans as from Thursday, February 1. Even German leave trains are said to have been stopped. This is the most drastic step the Germans have yet taken in the curtailment of Norwegian transport.

Paris-Lyons Railway Reopened

The main line between Paris and Lyons via Dijon has been reopened to traffic again after five months of interruption, according to a Paris radio announcement of February 8. It is stated that the interruption was caused by enemy destruction of the track between Les Laumes-Alésia and Dijon, and the Blaisy-Bas Tunnel.

French Railway Restoration

French press reports indicate that the restoration of the French railway system is progressing steadily. Many of the main lines were restored to working order during January, but the Argenteuil bridge is not expected to be available for traffic before the latter part of the present month, and until then it will not be possible to cross the River Rhone below Lyons.

It is believed that the number of locomotives in operation, which amounted to 6,365 on January 1, will be increased to about 7,250 by March 1, and 8,300 by July 1, and by the beginning of 1946 will have reached 9,100. It is also hoped that 20,000 carriages will be put into service between now and April 1, and another 10,000 between that date and the beginning of next year.

The Reichsbahn in 1944

A preliminary report in respect of the year 1944 was issued recently by the Reichsbahn. It emphasises the fact that last year proved the hardest so far that the German State Railway has encountered, mainly by reason of the retreat of the German armies in the east, west, and south of Europe. This meant for the Reichsbahn the conveyance of millions of men, in addition to several millions of tons of armaments, materials, stores, etc., as well as the simultaneous conveyance of a few hundred thousand German civilians or persons belonging to the auxiliary organisations of the political and armed forces scattered all over the countries Germany was forced to abandon. On top of that came the additional transport requirements of intensified (and dispersed) armament production. The report adds that the enormous difficulties were substantially enhanced by the devastating effects of the air war on Germany waged by the Allies, which, the report stresses, was not only intensified greatly in the second half of 1944, but was also concentrated in that period on railway plant, stations, trains, goods yards, etc.

For the first time during the war, preliminary figures of working results show a reduction in aggregate receipts, the figure for 1944 being somewhat less than RM. 11,500,000,000, compared with RM. 11,800,000,000 for 1943. This is stated officially to be the outcome of periodical travel bans and other passenger journey restrictions, as well as of the limitations in the conveyance of non-essential goods.

No expenditure figure is given, although it is stated that the working expenditure was higher than in 1943, mainly by reason of increases in wages and social welfare charges. The total of railway personnel was higher in 1944 than in 1943, through the employment of emergency and auxiliary staffs to replace those who, as a result of the coming-out drive, were called to the colours; the wages and salaries of the latter must continue to be paid. Pensions and other forms of financial assistance granted to Reichsbahn workers as from 1944 resulted in an additional burden of approximately RM. 150,000,000 per annum. A working surplus is reported, which, with the amount brought in from 1943, is stated to have enabled all liabilities to be met, after the allocation of the statutory annual contribution of RM. 120,000,000 to the Treasury. As in previous years, the financial affairs of the Reichsbahn were administered by the Deutsche Verkehrs-Kredit A.G.

Emergency Goods Destinations in Germany

Allied bombing of the German railways has made so frequent the cases when consignments of goods cannot be delivered because the consignees are bombed out or killed that a regulation has been introduced on the Reichsbahn making it compulsory for the names of "emergency consignees" to be entered in bills of lading.

Railway Equipment for Liberated Europe

Up to the present, the activities of T.A.C.I.T. (the Technical Advisory Committee on Inland Transport) have already been successful in securing the supply of motor lorries for various parts of Western Europe and of facilitating the negotiations for the sale by the U.S.A. to France of 700 steam locomotives; the supply of a somewhat smaller number of locomotives to Belgium is now in course of negotiation. The needs of Holland have been considered, and are now being met from Sweden, as we recorded last week, page 141. In the Balkans, T.A.C.I.T. has been successful in arranging through U.N.N.R.A. for the supply of 280 steam locomotives for use in Greece, Yugoslavia, Czechoslovakia, and Poland, and 10 narrow-gauge engines for Yugoslavia. We refer in an editorial article (page 151) to the work of T.A.C.I.T.

Increased U.S.A. Demurrage Charges

From October 19, by Interstate Commerce Commission Revised Service Order No. 242 dated October 13, 1944, the demurrage charges for bogie box wagons in the United States were stiffened considerably, in an attempt to ease the acute wagon shortage. After the expiration of the tariff free time, detention for each of the next two days was charged at \$2.20 per day per wagon; the third day was charged at \$5.50; the fourth at \$11.00; and the fifth and each succeeding day, or part of a day, at \$16.50. Under the original order, the maximum charge that could be made was \$11.00 per day per wagon. In the case of box wagons that are subject to an average agreement, in the event of detention beyond the tariff free time, the demurrage of \$2.20 for each of the first two days might be offset or reduced by accrued credits, as is provided for in the tariffs, but beyond this time the full demurrage charges had to be paid. The revised Order was applicable in the first instance for one month only, and arose mainly from the demand for box wagons to move the bumper wheat crop, in addition to the constantly-increasing military traffic. It did not apply to freight stock other than box wagons.

Railways on the Russian Supply Lines



German track-wrecking machine captured by Soviet troops in the Ukraine



Some German locomotives captured by the advancing Russians



Abandoned German rolling stock captured in the Ukraine. The Russian railwayman is chalking an indication that he has examined the vehicle and found it "all right" for use



Bridge trusses made in Germany for Ukrainian rivers. They were brought to the Ukraine by the Germans but eventually used by the Russians for bridging rivers on the advance to Germany

Training Railway Engineers in the U.S.S.R.

By Engineer Semenov

A short time ago I visited the Leningrad Institute of Railway Engineers where I had the pleasure of meeting a happy and excited contingent of students who, together with the Faculty, are rebuilding their old schools and removing all traces of the damage done by shells and bombs. Everyone in the Institute, from the youngest student to the oldest professor, is playing his part in this work of restoration. Some of them cleaned and stacked old bricks, others worked as bricklayers, carpenters, and painters, while others again put the equipment of the laboratories and study rooms in order.

Two years ago I saw these same people exhausted by hunger and cold, and continual artillery bombardment and air raids. At that time there was neither light nor water in the city, and the bread ration had been reduced to a minimum. Although some dropped from hunger and fatigue, they continued to attend the Institute, which carried on without gas, heat, light, or water. Professors wrapped to the ears in heavy coats and woollen shawls drew blackboard diagrams of stations, junctions, bridges, and locomotive parts, with hands that were stiff with cold.

When the Leningrad front was breached, the Institute was evacuated to the East, where it continued its work of training railway engineers. Now the Institute is back in Leningrad and is being rebuilt at top speed. It was founded in 1809 and is thus one of the oldest higher schools in Russia. Such famous scientists as Klapeiron and Mendeleev worked within its walls, and among its graduates were Professor Zhuravsky, who designed the first large railway bridges in Russia; Academicians Graftio and Vedenyev, builders of hydro-electric power stations; Academicians Baikov, Obratsov, and Peredery; and Melnikov and Kraft, who built the first lengthy Russian railway, from Leningrad to Moscow, and who took part in building the Trans-Siberian Railway.

Soviet railway engineers are now trained in 12 institutes, nine of which have been founded since 1930. The youngest of these, that in Khabarovsk, was founded in 1939, and last year it graduated its first group of engineers for the Far Eastern Railways. Engineers for all branches: traffic, mechanical, line construction, bridge building, and signalling, as well as power engineers and economists, are trained in these institutes. In view of the tremendous reconstruction work now in hand, five institutes of railway engineers have opened new departments for training engineers to build and repair bridges and tunnels.

The number of graduates from the institutes grows from year to year, as the following figures show: from 1810 to 1917, a total of 7,108 railway engineers were trained in Russia; during the period 1931 to 1935, now fewer than 11,780 engineers graduated; and, in the five years preceding the war, there were more than 17,000. Almost every large station depot, permanent way section, or wagon-building department in the U.S.S.R. has one or two engineers on its staff.

The war brought great changes to the institutes. Many students and instructors went to the front, either with the People's Guard or with the Red Army; others joined the partisans. Seven insti-

tutes were in war-threatened areas and had to be evacuated without any lengthy break in their work, for the country needed railway engineers keenly.

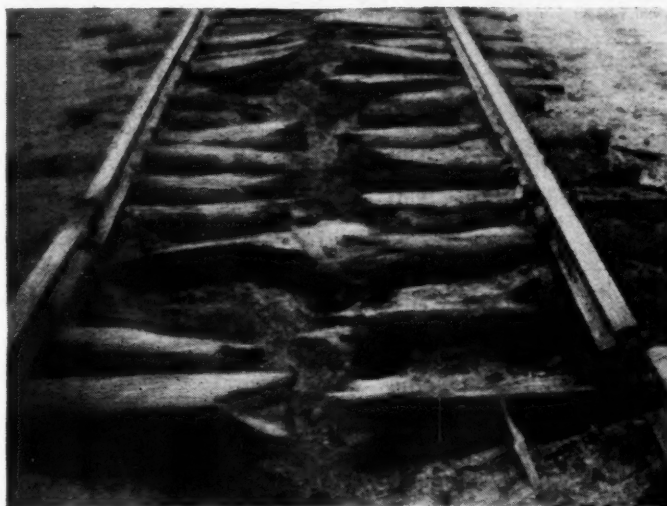
Despite all difficulties, the institutes have had upwards of 18,000 engineers graduate since the war began. Although greater demands are made on engineers today, the quality of their work has improved. There are more students attending railway institutes than before the war. Branches of the institutes have been opened in many cities, and those who cannot give up the whole of their time to study, attend evening courses or take correspondence courses.

In Moscow there are special two-year courses for technicians who wish to take their engineer's degree. One-year courses also exist for re-qualifying engineers

Institutes. Nurseries, kindergartens, and playgrounds, where they may leave their children temporarily or permanently, are provided for children of women studying at the institutes.

More than 1,000 instructors, among them 115 professors and 14 Masters of Science, teach in railway institutes. The teaching body also includes Academician Obratsov, who specialises in planning stations and junctions; Academician Peredery, designer of the country's biggest bridges; and Academician Syromyatnikov, the leading locomotive designer in the Soviet Union. Another of the teachers is the youngest corresponding member of the Academy of Sciences, 32-year-old Professor Chukhanov. Many students have been awarded Government Orders and Medals.

Engineers who graduate from railway institutes, like those of other professions, are assured rapid promotion in their work. Many who left the institutes five or eight years ago now head



The effect of a German track-wrecking machine on Polish railways left behind in the retreat. The remains of one of such machines captured in the Ukraine are shown in a picture on the opposite page. A complete machine, and its effect on Italian track, formed the subjects of two illustrations in our issue of January 14, 1944

working in various branches of transport. These courses are intended to give the engineer a good understanding of all branches of railway transport, in addition to his specialised knowledge.

All students who obtain pass marks at their examination receive a State salary. Those who secure an all-round mark of excellence receive higher salaries, allotted to them personally. Stipends are also granted to students at all institutes taking preparatory courses. Students from other towns and in need of living quarters have well-equipped hostels provided for them. The institutes have their own dining rooms, shops, and other amenities. The student rations are the same as those of industrial workers. In addition, every institute has its own farm, which supplies additional food for the students.

Special attention is paid to women students, who in 1943 formed 60 per cent. of the student body. In pre-revolutionary days, women railway engineers were almost unknown, and very few women students were accepted into the

important sections of railways, and in some cases even direct a railway, which indicates that their training makes them not only good engineers but also good administrators.

Throughout the whole course of training, the student is in constant touch with the practical work of the railways. At the end of the second year, he does practical work on a railway, beginning with the lowest grade; and at the end of each successive year he spends a period working in the profession he has chosen. On leaving the institute, he now works under engineers for two years, instead of one year as formerly. This ensures that he will acquire practical knowledge of the working of a railway, and at the same time show his ability as an engineer.

The fact that Soviet railways have been able to meet all war transport requirements, and secure regular communications for the Red Army, speaks highly of the martial spirit of those railwaymen who have passed through the Soviet Institutes of Railway Engineers.

Bridge trusses made in Germany for Ukrainian rivers. They were brought to the Ukraine by the Germans but eventually used by the Russians for bridging rivers on the advance to Germany

Abandoned German rolling stock captured in the Ukraine. The Russian railwayman is chalking an indication that he has examined the vehicle and found it "all right" for use

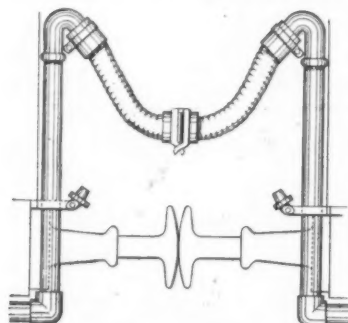
The Vacuum Brake 60 Years Ago

This year marks the Diamond Jubilee of the award of a gold medal at the International Inventions Exhibition, Kensington, 1885, for "the vacuum continuous automatic brake, with universal coupling." We therefore examined recently with considerable interest a pamphlet description of the vacuum automatic brake "C" which was issued in July, 1886, by Mr. Alfred L. Sacré, Engineer of the Vacuum Brake Co. Ltd. From this the following particulars are extracted:—

DESCRIPTION

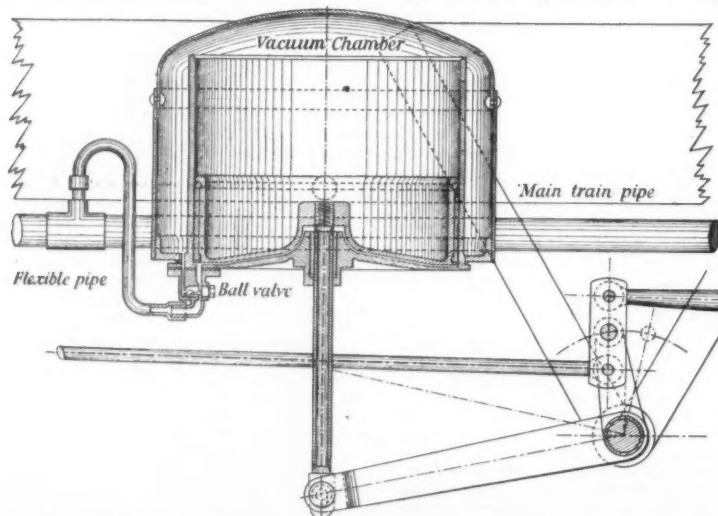
By means of a small ejector placed upon the engine, the air is drawn out of the main train pipe, and from the top and bottom sides of piston, through the flexible pipe and ball valve, so that in running a vacuum of 20 to 24 inches is maintained throughout the system. The brake is operated by a valve in connection with the main train pipe, which is opened by the driver or guard, allowing air to flow to the bottom side of piston, thereby applying the brakes, the top side and vacuum chamber maintaining the vacuum through the action of the ball valve, which closes immediately air is admitted to the train pipe.

In the event of a train parting, the "universal" hose couplings, will, without damage, become detached, and



Vacuum brake universal coupling

the brakes immediately apply themselves. To release the brakes, when the engine has been detached from the train, the ball valve (by means of a small wire cord placed on either side of the carriage) is opened, which admits air to the top side of piston, thus restoring equilibrium on both sides of piston, under which conditions the brake falls off by gravity. The rings on piston, also hose pipe connections, and flexible pipe to cylinder, are made of the best rubber, and coated with a material which effectually resists oil and grease. In simplicity, efficiency, and durability, this brake is unequalled by any other system, there being no parts exposed to friction, or requiring lubrication. The brake is not affected by frost and dust like other systems.



Section through Vacuum automatic brake, type "C," of 1885

List of Railways using the Vacuum Brakes, and Mileage Run, with same, from January, 1884 to December, 1885, inclusive

Name of Railway	Mileage
Aylesbury and Buckingham, Locom. Supt. W. Dean, Esq., Swindon	45,451
Ballymena and Larne, Locom. Supt. W. Pinkerton, Esq., Larne	60,859
Belfast and Northern Counties, Locom. Supt. B. Malcom, Esq., Belfast	439,489
Cheshire Lines—Charles Sacré, Esq., Manchester; P. Stirling, Esq., Doncaster; S. W. Johnson, Esq., Derby	2,581,735
Dublin, Wicklow and Wexford, Locom. Supt. W. Wakefield, Esq., Dublin	1,308,927
Furness Railways—Locom. Supt. R. Mason, Esq.; Carriage Supt. T. Sutton, Esq., Barrow-in-Furness	335,288
Glasgow and South Western, Locom. Supt. H. Smellie, Esq.; General Manager, W. J. Wainwright, Esq.	106,649
Great Northern, Locom. Supt. P. Stirling, Esq., Doncaster	16,856,023
Great Northern of Ireland, Locom. Supt. James C. Park, Esq., Dundalk	1,653,973
Great Southern and Western, Locom. Supt. J. A. F. Aspinall, Esq., Inchicore	3,530,013
Great Western, Locom. Supt. W. Dean, Esq., Swindon	22,726,254
Highland, Locom. Supt. D. Jones, Esq., Inverness	Cannot be given
Lancashire and Yorkshire, Locom. Supt. W. B. Wright, Esq.; Carriage Supt. F. Attock, Esq., Manchester	Cannot be given
London, Chatham and Dover, Locom. Supt. W. Kirtley, Esq., Wandsworth Road, London	69,751
London and North Western, Locom. Supt. F. W. Webb, Esq., Crewe	12,520,424
London and South Western, Locom. Supt. W. Adams, Esq., Nine Elms, London	6,816,105
Manchester, Sheffield and Lincolnshire, Chief Engineer, Charles Sacré, Esq., Manchester	6,261,596
Manchester, South Junction and Altrincham, Secretary, R. H. Brown, Esq., Manchester	386,660
Mersey, Locom. Supt. C. A. Rowlandson, Esq., Birkenhead	Cannot be given
Metropolitan, Locom. Supt. J. J. Hanbury, Esq., Neasden, London	2,563,617
Midland, Locom. Supt. S. W. Johnson, Esq.; Carriage Supt. T. G. Clayton, Esq., Derby	22,824,324
Midland, Great Western of Ireland, Locom. Supt. M. Attock, Esq., Dublin	481,935
North Eastern, Locom. Supt. T. W. Worsdall, Esq., Gateshead	866,000
North Stafford, Locom. Supt. L. Longbottom, Esq., Stoke-upon-Trent	647,207
Sligo, Leitrim & Northern Counties, Locom. Supt. H. Tottenham, Esq., Manorbhamilton	53,150
Somerset and Dorset, Locom. Supt. W. French, Esq., Highbridge	36,819
South Eastern, Locom. Supt. J. Stirling, Esq.; Carriage Supt. W. Wainwright, Esq., Ashford	3,596,068
Taff Vale, Locom. Supt. T. H. Riches, Esq.; Carriage Supt. H. O. Fisher, Esq., Cardiff	499,577
Waterford and Limerick, Locom. Supt. H. Appleby, Esq., Limerick	30,968

The following advantages are claimed for THE VACUUM AUTOMATIC BRAKE

1. Can be applied to a train of any number of carriages.
2. Is automatic, or self-applying, in case of accidental separation of carriage or damage to any of its parts.
3. It is instantaneous in its action.
4. The Brake can be applied any number of times without exhausting its power.
5. The operating power of the Brake is the pressure of the atmosphere on the lower side of a piston against a more or less perfect vacuum on the top side of the piston, which can be regulated so as to apply any amount of force to the blocks of the wheels.
6. This force can be increased or decreased at pleasure, without removing the blocks from the wheels.
7. It may be applied with any amount of pressure for retarding a train down an incline of any length, whilst its full power is at command for instantaneous application by driver or guard.
8. The power being atmospheric pressure, is in all cases external, the joints are thus easily kept tight, and there is no tendency to burst the connecting hose.
9. There are practically no frictional surfaces, the piston being packed with a rolling ring, and the valve is a rolling ball. No lubrication is required, and the working of the Brake is not affected by dust or frost.
10. Economy in the use of steam, a very small ejector being capable of maintaining the vacuum.
11. When desirable, cocks are applied at the ends of the carriages, but are not recommended, owing to the danger of porters leaving them closed. Where carriages have to be slipped whilst the train is in motion cocks are applied.
12. Simplicity. The Brake is applied, regulated, and released by one handle. No pump or separate reservoir on engine required.

One of the most interesting features of this descriptive pamphlet is the list of railways using vacuum brakes, and the mileage run with them during the two years 1884 and 1885, which we reproduce alongside. The pamphlet added that the vacuum brake was in extensive use in India and the Colonies, and also on many Continental railways; that it had been largely adopted for goods engines; and that it was being adopted extensively for tramways. Mr. O. V. Bulleid, Chief Mechanical Engineer, Southern Railway, loaned us the copy of the pamphlet from which our extracts were made; it bears the rubber stamp of the Carriage & Wagon Department of the South Eastern Railway at Ashford, Kent, and the date November 20, 1886.

EXPORT LICENSING.—The Export of Goods (Control) (No. 3) Order, 1944 (S.R. & O. 1944, No. 1424), made by the Board of Trade on December 22, 1944, and operative as from January 1, 1945, makes relaxations in the control of exports. The Board of Trade points out that the Order refers to export licensing requirements only, and does not in any way affect any regulations which may be in force governing the manufacture of goods, including manufacture for export. Copies of the Order may be obtained, price 1d., through any bookseller or newsagent, or direct from H.M. Stationery Office, Kingsway, W.C.1.

TWIST DRILLS.—The Ministry of Supply announces that, in view of the greatly-improved supply position of high-speed steel twist drills, it has been decided that there is no longer any necessity to continue the Control of Machine Tools (Twist Drills) (No. 1) Order, and that, accordingly, that Order has been revoked. It has been decided also that there is no longer any necessity to continue the operation of the Twist Drill Allocation Centre, which was set up to work in conjunction with the licensing scheme. That centre will cease to function on February 16, and on and after February 17, buyers may revert to the sources of supply with which they were accustomed to deal before the inception of the centre.

Questions in Parliament

London and Ilford Train Service

Major Geoffrey Hutchinson (Ilford—C.) on February 6 asked the Parliamentary Secretary, Ministry of War Transport, whether he was aware of the unsatisfactory condition of the suburban train service between Liverpool Street Station and Ilford, the carriages being badly lighted, badly heated, obsolete and dirty, and the trains overcrowded at the rush hours and unpunctual; and whether he would afford the railway company the facilities which it required to carry out such improvements as might mitigate, so far as practicable, the hardships imposed by the present conditions on the large population which was obliged to make daily use of this service.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: This service is one of the most intensively used suburban services in the country. During the war it has not been possible to provide new or additional carriages and many of those in use are, as Major Hutchinson suggests, in a somewhat dilapidated condition. I am assured by the L.N.E.R. that, so far as its resources of labour and material permit, the carriages are being maintained and kept clean, but their intensive use renders this more than usually difficult. The unpunctuality of the trains in recent weeks has been due to the difficult weather conditions and shortage of staff through sickness. Shortage of staff also has impeded the maintenance of the heating and lighting equipment, but I am advised that much of the bad lighting to which Major Hutchinson refers is due to the removal or breakage of electric bulbs and gas mantles by the travelling public. Major Hutchinson may be assured that, when conditions permit, schemes for the improvement of this service will be put into effect.

Heating of Waiting Rooms

Mr. Bernard Taylor (Mansfield—Lab.) on February 7 asked the Parliamentary Secretary, Ministry of War Transport, if he was aware of the discomfort caused to service personnel waiting for trains at a railway station, of which he had been informed; and would he give instructions for the provision of heating in the waiting-rooms during the night.

Mr. Noel-Baker wrote in reply: I am making inquiries, and will communicate with Mr. Taylor.

Kenya & Uganda Railway

Colonel A. M. Lyons (Leicester East—C.) on January 24 asked the Secretary of State for the Colonies whether, with a view to the early development of local resources, any, and what plans, had been considered for the gradual electrification of considerable stretches of the western half of the Kenya & Uganda Railway.

Colonel Oliver Stanley (Secretary of State for the Colonies) in a written answer: I am not aware that the electrification of any part of the railway is contemplated.

Regional Transport Commissioners

Colonel A. M. Lyons (Leicester East—C.) on January 25 asked the Parliamentary Secretary to the Ministry of War Transport what salary was paid to the North Regional Transport Commissioner; what pension or retired pay was received by this officer; and if he would circulate a list showing those commissioners who were in receipt of salary only in respect of their offices and those who in addition drew any other pension or retired pay; and the respective amounts.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport) stated in a written answer: 1. The name of the Regional Transport Commissioner is

Region	Commissioner	Salary	
Scotland ...	Archibald Henderson ...	£1,500*	
London ...	Gleeson E. Robinson, C.B., M.C., LL.D. ...	£1,700	
North Midland ...	J. A. Stirk, M.Inst.T., J.P. ...	£1,500*	
Wales ...	H. T. Trevor Morgan, M.C., K.C., J.P. ...	£1,500*	
North Eastern ...	F. S. Eastwood ...	£1,500*	
Midland ...	Sir Arnold Musto, A.C.I.E., M.Inst.C.E. ...	£1,500*	
Southern ...	Sir Henry Piggott, C.B., C.B.E. ...	£1,700	Civil Service pension is suspended.
South Western ...	Sir Alfred Robinson, C.B., M.Inst.T. ...	£1,182 10s.	Civil Service pension £1,017 10s
Eastern ...	Sir Alfred Faulkner, C.B., C.B.E. ...	£1,500*	Civil Service pension abated to £486 per annum.
South Eastern ...	Lt.-Col. F. Gordon Tucker, O.B.E., T.D. ...	£1,500*	£1,420 paid as actual salary £80 allocated to wife as part of pension remainder of pension abated.

* Plus war bonus £60 a year

Sir John Maxwell, C.M.G., and his salary is £1,500 a year. Sir John Maxwell is also in receipt of an annual pension of £1,166 13s. 4d. from the Gold Coast Funds (Crown Agents for the Colonies).

2. The above list gives the names of the other Regional Transport Commissioners together with their salaries and a note of any pension or retired pay.

Public Relations Officers

Mr. R. De la Bere (Evesham—C.) on February 6 asked the Secretary to the Treasury whether, due to the fact that responsibility for administration and expenses of the public relations officers attached to the various Government departments was partially that of the Treasury and partially that of the Ministry of Information, he would confer with that Minister and publish the total number of public relations officers, including paid publicity agents, employed by the Government departments as at January 1, 1945, and the total cost of their salaries and expenses for the year ended December 31, 1944.

Mr. Osbert Peake (Financial Secretary to the Treasury): I cannot assent to Mr. De la Bere's description of the responsibility for the administration and expenses of public relations officers as partly that of the Treasury and partly that of the Ministry of Information. Although arrangements exist for co-ordination, public relations officers are appointed by their respective Departments, subject to the usual Treasury control. A statement as to the numbers and cost of such staff in Government Departments was circulated in the Official Report on Thursday last in reply to Sir Ernest Graham-Little (London University—Ind.).

Mr. De la Bere: Is the Minister aware that the statement did not give particulars of the Ministry of Information staff, and is he not further aware that there is a substantial expense to the taxpayer in the volume of fiction masquerading as news which is published at the request of the Departments?

Mr. Peake: As to the first part of the question, perhaps Mr. De la Bere will put a question to the Minister of Information on that point. As to the second part, I expected that the considerable reduction in the number of these officers noted in the statement to which I have referred, would have afforded a substantial, if unusual, degree of satisfaction to Mr. De la Bere.

Sir Herbert Williams (South Croydon—C.) on February 6 asked the Minister of Fuel & Power why a civil servant named Mr. Michael Romain was permitted to enter into controversy with Mrs. Sheila Bumford, one of His Majesty's subjects, through the medium of a letter to *The Times* newspaper.

Major Lloyd George: Mr. Romain is the Director of Public Relations of my Ministry, and the letter in question, which contained nothing controversial, was sent to *The Times* newspaper as part of his normal duties, and had my approval.

Sir H. Williams: Does not the Minister realise that, if civil servants write letters to the papers on matters which, whether they are factual or not, are controversial, ultimately the result will be that we shall start attacking civil servants by name in this Chamber.

Major Lloyd George: I agree that as a general rule that would be so, but these officers are for the purpose of giving information—in this instance of an extremely important character, because the peak load of electricity is one of the most important things affecting the recent difficulty. There was no controversy involved, and it is a little difficult, other than by letter, to get information if the newspaper does not refer to the Minister first.

Sir H. Williams: Was not the old practice that, when a Minister wished information conveyed, he wrote a letter to a correspondent and had it published, so that the Minister and not the civil servant gave the information?

There was no reply.

Property of War Casualties

Mr. Edgar Granville (Eye—Ind.) on February 7 asked the Parliamentary Secretary, Ministry of War Transport, whether the personal effects of Cadet Dennis Cox, who was killed in action in August, 1943, which were lost somewhere between the Mercantile Marine Office, Glasgow, and Halesworth, Suffolk, while in the hands of a cartage contractor, were consigned by passenger or goods train; and what steps were taken by his Ministry to see that the personal effects of those killed in action safely reached next-of-kin in this country.

Mr. Noel-Baker in a written answer stated: It has been the general practice in the past to send the effects of deceased seamen to their next-of-kin by goods train. I am glad to say that hitherto such losses have been very rare; but I recognise that when they do occur, they cause great distress to the seamen's relatives. I have decided, therefore, that in future the effects will be sent by passenger train. Mr. Granville will remember, however, that in the case of Cadet Dennis Cox, the effects were lost before they reached the station.

Voluntary Transport Scheme

Mr. Evelyn Walkden (Doncaster—Lab.) on January 23 asked the Secretary of State for War if, in view of the numerous outlying villages round Doncaster and its importance as a railway centre, he would treat the station as requiring special consideration and extra supplies of petrol under the "Get you Home" scheme, to enable an efficient voluntary transport scheme to convey leave men to their homes or villages after public service vehicles had ceased to run.

Sir James Grigg (Secretary of State for War) in a written answer stated: The "Get you Home" scheme depends on the number of car owners prepared to give their services. It is unlikely that shortage of petrol will jeopardise the success of the scheme.

Notes and News

Vulcan Foundry Limited London Office.—The London Office of the Vulcan Foundry Limited has removed from 75, Victoria Street, to 82, Victoria Street, S.W.1. The new telephone number is Victoria 8778.

Railway "Keys" Stolen by Girls.—Three girls, aged 11 to 16 years, were each fined £1, with 7s. 6d. compensation, at Shankill recently for having stolen 68 wooden "keys" from the railway line at Carrickmines, Co. Dublin.

Specialoid Pistons (London Sales) Limited.—It is announced that Specialoid Pistons (London Sales) Limited has changed its name to A. W. Roebuck Limited. Mr. A. W. Roebuck, the Governing Director of the company, was formerly Sales Manager of Specialoid Limited.

Safety of Railway Reservoir.—The London Midland & Scottish Railway Company announces that it has appointed Mr. Ronald Crawford Warren, B.Sc., M.Inst.C.E., of 94, Hope Street, Glasgow, to make an inspection and report in pursuance of Section 2 of the Reservoirs (Safety Provisions) Act, 1930, on the company's reservoir at Black Loch, which is situate partly in Slamannan (Co. Stirling) and partly in New Monkland (Co. Lanark).

B.A. Pacific and Argentine G.W. Payments.—The Buenos Ayres & Pacific Railway Co. Ltd. is paying a full year's arrears of interest to January 1, 1941, on its 4½ per cent. consolidated debenture stock. The previous payment on this stock, made in August last, covered the six months' prior to January 1, 1940. Payment of one year's arrears to April 1, 1941, is to be made on the 5 per cent. debenture stock of the Argentine Great Western Railway Co. Ltd., following a previous payment for the six months to April 1, 1940.

Canadian Pacific Railway.—Gross earnings of the Canadian Pacific Railway for the month of December, 1944, were \$25,592,000, a decrease of \$1,691,000 in comparison with December, 1943. The working expenses of \$20,842,000 showed a reduction of \$1,423,000, leaving net earnings \$268,000 lower, at \$4,750,000. For the whole year 1944 gross earnings amounted to \$318,871,000, an improvement of \$21,763,000, but the aggregate net earnings of \$43,160,000 were \$6,052,000 lower than those for the year 1943. These figures do not include "other income."

Bengal-Dooars Railway.—According to *The Financial News* a third and final distribution of £15 0s. 6d. on each £100 of the £400,000 ordinary stock of the Bengal-Dooars Railway Co. Ltd. was payable on January 29. The undertaking, comprising 161 miles of line, was purchased by the Government of India as from December 31, 1940, and now forms part of the Bengal & Assam State Railway system. A resolution placing the company in voluntary liquidation was passed on January 2, 1941. The preference stock (£360,000) was repaid at par on January 3, 1941, and a first distribution of £210 on each £100 of ordinary stock was made on January 11, 1941.

Road Accidents in December, 1944.—The return issued by the Ministry of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of December last shows 609 deaths (compared with 690 in December, 1943), 2,878 seriously

injured (compared with 3,150 in December, 1943), and 8,747 slightly injured (compared with 8,387 in December, 1943). Fatalities during the year 1944 amounted to 6,416, compared with 5,796 in 1943. The increase of 620, states the Ministry of War Transport, may be explained partly by the increased road traffic during the preparations for the invasion of enemy-occupied Europe.

Canadian Rolling Stock for Jamaica.—It is reported that six locomotives and 75 carriages, ordered from Canadian builders, have now been received by the Jamaica Government Railway. Reference to their construction was made in our February 4, 1944, issue; and an illustration of one of the six locomotives was published in our October 6, 1944, issue.

Chief Railway Commissioner Required.—A chief railway commissioner is required by the Government of Burma to act as chief executive officer for regulation, instruction, maintenance and operation of the Burma Railways. Candidates must have had experience in work of high responsibility in railway administration, including operational experience. For full particulars of this appointment see our Official Notices on page 171.

Southern Railway First-Aid Awards.—Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway, accompanied by a number of officials of the company, recently presented awards to the Waterloo Station Ambulance Class. Mr. E. Uzzell, Welfare Officer, Southern Railway, presided. Mr. Robertson expressed the opinion that there should be first-aiders everywhere; he would do everything possible to encourage his staff to take an intensive interest in ambulance work.

President Suggests Military Control of Mexican Railways.—It is reported that, as a result of the recent railway disaster at Cazadero (to which reference was made in our February 9 issue), the President of Mexico is proposing to the trade unions that railways and other transport should be militarised. He proposes that the unions should continue to exercise their rights and privileges, but operate under a military regime. Leaders of the Mexican Railway Workers' Union are said to be perturbed.

East Kent Light Railways Company.—The petition by the East Kent Light Railways Company for the extension for a further five years from January 1, 1944, of the scheme of arrangement with its creditors, which first became operative for five years from January 1, 1934, and was extended in November, 1939, to December 31, 1943, has now been confirmed by Mr. Justice Vaisey, who has made an Order for such confirmation. Under the scheme, the company applies the whole of its net revenue in meeting as far as possible the interest on the £129,970 of 5 per cent. perpetual debenture stock and cancels the balance of interest not met. Reference to the petition was made on page 502 of *The Railway Gazette* for November 17, 1944.

Railwaymen Sentenced in Connection with Stolen Goods.—Three locomotive drivers and three locomotive firemen of the London Midland & Scottish Railway pleaded "guilty" at the Central Criminal Court recently to charges of stealing or receiving a quantity of goods of the value of £1,800, while in course of transit. Five of them received sentences varying from four years' penal servitude to nine months' imprisonment; the sixth was bound over. The goods concerned in the charges included large quantities of

cigarettes, women's hosiery, wines and spirits, wireless sets, books, a piano accordion, and cartons of mint gum and packets of sweets, the property of the United States Army.

Manchester Ship Canal Company.—The directors of the Manchester Ship Canal Company have resolved to recommend at the ordinary general meeting on January 28, the following dividends: 3½ per cent. on the Manchester Ship Canal Corporation preference stock; 3 per cent. on the pre-

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices	
			Feb. 13, 1945	Rise/Fall
G.W.R.				
Cons. Ord. ...	62½	55	58½	+ ½
5% Con. Pref. ...	122½	114½	120½	—
5% Red. Pref. (1950) ...	110½	104	106	—
5% Rt. Charge ...	135½	128	134½	—
5% Cons. Guar. ...	134½	125	133½	—
4% Deb. ...	118½	112½	116½	—
4½ Deb. ...	118½	114	118½	—
4½ Deb. ...	124½	119½	122½	—
5% Deb. ...	137	129½	136½	—
2½ Deb. ...	77	73½	75½	—
L.M.S.R.				
Ord. ...	34½	27½	29½xd	— ½
4% Pref. (1923) ...	64½	55½	60½xd	— ½
4% Pref. ...	81	72½	79½xd	— ½
5% Red. Pref. (1955) ...	105½	102	104	+ 2
4% Guar. ...	107½	99½	104½xd	— 1
4% Deb. ...	111½	104	107½	—
5% Red. Deb. (1952) ...	111	108	108½	—
L.N.E.R.				
5% Pref. Ord. ...	10½	7½	7½	— ½
4% Pref. ...	5½	3½	4	— ½
4% Second Pref. ...	35½	28½	31	— ½
5% Red. Pref. (1955) ...	102½	97½	102	—
4% First Guar. ...	105½	96½	102½	— ½
4% Second Guar. ...	95½	88½	94½	—
3% Deb. ...	88½	80½	86	—
4% Deb. ...	110½	103½	107	—
5% Red. Deb. (1947) ...	117½	101½	102½	—
4% Sinking Fund Red. Deb. ...	107	104½	104½	—
SOUTHERN				
Pref. Ord. ...	80½	71½	77½	— ½
Def. Ord. ...	26½	23	26	—
5% Pref. ...	122	113½	119½	—
5% Red. Pref. (1964) ...	117½	112½	115½	—
5% Guar. Pref. ...	134	125½	133½	—
5% Red. Guar. Pref. (1957) ...	115½	112½	115½	—
4% Deb. ...	118	110	115½	—
5% Deb. ...	135½	127	134	—
4% Red. Deb. (1962-67) ...	111½	107½	109½	—
4% Red. Deb. (1970-80) ...	112	108½	110½	+ 1
FORTH BRIDGE				
4% Deb. ...	107	103	105	—
4% Guar. ...	106½	102	105	—
L.P.T.B.				
4½ "A" ...	125	119	122½	—
5% "A" ...	133½	128	132½	—
3% Guar. (1967-72) ...	99½	98	99	—
5% "B" ...	124½	118½	123½	—
"C" ...	72½	64½	69	—
MERSEY				
Ord. ...	35½	33	36	—
3% Perp. Pref. ...	72	66	70	—
4% Perp. Deb. ...	105	103	107	—
3% Perp. Deb. ...	85½	79½	84	—
IRELAND*				
BELFAST & C.D.				
Ord. ...	9	6	6½	—
G. NORTHERN				
Ord. ...	33½	19	28	+ ½
Pref. ...	49	37	45	—
Guar. ...	70	57½	70½	+ ½
Deb. ...	90½	81½	92½	+ ½
IRISH TRANSPORT				
Common ...	—	—	75	+ 8½
3% Deb. ...	—	—	98½	—

* Latest available quotation

Overseas Employment

CHIEF RAILWAY COMMISSIONER required by Government of Burma to act as Chief Executive Officer for regulation, instruction, maintenance and operation of Burma Railways. Candidates should not be over 45 and must have had experience in work of high responsibility in railway administration, including operational experience. Tenure of office five years in the first instance, with probability of renewal. Salary and allowances Rs. 3,000 per mensem (approximately £2,700 p.a.). Free passage out and return.

Applications in writing (no interviews), stating date of birth, full details of qualifications and experience, including present employment; also Identity and National Service or other registration particulars, and quoting reference No. O.S.509, should be addressed to the Ministry of Labour and National Service, Appointments Department, A.3(A), Sardinia Street, Kingsway, London, W.C.2, not later than 24th February, 1945.

London Midland and Scottish Railway Company

NOTICE is hereby given that the next **ORDINARY GENERAL MEETING** of the London Midland and Scottish Railway Company will be held at Euston Station, London, N.W.1, on Friday, the 2nd day of March, 1945, at 11.30 a.m. precisely, for the transaction of the general business of the Company.

ROYDEN, Chairman.
G. R. SMITH, Secretary.
Euston Station,
London, N.W.1.
15th February, 1945.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

London and North Eastern Railway Company

NOTICE IS HEREBY GIVEN that the Twenty-second Ordinary General Meeting of the Proprietors of the London and North Eastern Railway Company will be held at Grosvenor House, Park Lane, London, W.1, on Friday, the second day of March, 1945, at 2 p.m. for the purpose of the general business of the Company appointed to be done at an Ordinary Meeting, and for the determination of the remuneration of the Auditors for the year 1945.

Dated this 14th day of February, 1945.
By Order,
W. H. JOHNSON,
Secretary of the Company.

Marylebone Station,
London, N.W.1.

Universal Directory of Railway Officials and Railway Year Book

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ference shares; 1½ per cent. on the ordinary shares. Net revenue for year, after deducting interest and fixed charges, and provision for taxation and reserves, was £214,436 (last year £209,744).

"Bradshaw"—**Royal Warrant**.—The Proprietors of *Bradshaw's Guide to the British Railways* (Henry Blacklock & Co.

Ltd.) has announced the grant of a Royal Warrant of Appointment to His Majesty The King.

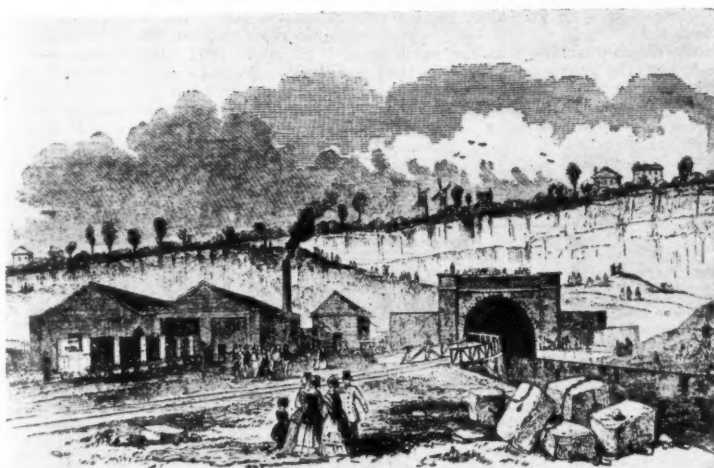
Mansion House Association on Transport.—The annual general meeting of the Mansion House Association on Transport is to be held at the Connaught Rooms, Great Queen Street, W.C.2, at 3.15 p.m. on

March 21. It will be preceded, at 12.45 for 1 p.m. by the annual luncheon, at which Mr. Ernest Bevin, Minister of Labour & National Service, will be the principal guest.

Great Northern (Ireland) Meeting Date.—The next ordinary annual general meeting of the proprietors of the Great Northern Railway Company (Ireland) will be held in the Gresham Hotel, Upper O'Connell Street, Dublin, on Tuesday, February 27, 1945, at 12.15 p.m.

100-Year-Old Railway Through Canal Tunnel

(See editorial note, page 150)



The Strood entrance to the Thames & Medway Canal tunnel after a single-line of rails had been laid through it in 1845



Present-day view of the same scene showing new signal box and electrified track; the line through the tunnel was converted to electric traction in 1939

Contracts and Tenders

Pegson Limited is moving its offices from its works at Coalville to 7, Idlesleigh House, Caxton Street, London, S.W.1 (telephone number: Abbey 2373; telegraphic address: Melbrom, Sowest, London).

Below is a list of orders placed recently by the Egyptian State Railways:—
British Oxygen Co. Ltd.: Welding rods.
B.X. Plastics Limited: Asbestos packing.
Tuck & Co. Ltd.: Asbestos packing.
Dewrance & Co. Ltd.: Asbestos packing.
Richard Klingner Limited: Asbestos packing.
Turner Bros. Asbestos Co. Ltd.: Asbestos packing.

Guest Keen & Nettlefolds Limited: Bolts and screws, etc.

Forthcoming Meetings

February 16 (Fri.).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 5 p.m. "The Variable-pitch Marine Propeller," by Mr. J. Lockwood Taylor, D.Sc.

February 17 (Sat.).—The Institute of Transport Metropolitan Graduate & Student Association, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. 2.15 p.m. A paper on "Transport and Education," by Mr. J. A. R. Turner, A.M.Inst.T.

February 21 (Wed.). The Institute of Refrigeration, at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 5.30 p.m. A paper entitled, "Refrigerated Transport by Rail: Some Limitations and Possibilities," by Mr. T. A. Eames, M.Sc.

February 23 (Fri.).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. An open discussion, "Lets Talk of Troubles."

February 24 (Sat.).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1. 3.30 p.m. "The Problems Involved in the Establishment of a Large Works in a Country District," by Mr. N. Hanlon, G.I.Mech.E.

Railway Stock Market

Stock markets have been generally cheerful under the lead of British Funds and industrials; sentiment has been assisted by the comprehensive result of the Churchill-Roosevelt-Stalin conference. The volume of business showed no marked increase, and buying of industrials was selective, and centred mainly on stores shares and shares of other companies which are currently assumed to offer prospects of improved earnings and dividends after the war.

With increasing expectations that the war with Germany is drawing to a close, home rails remain under the uncertainty surrounding the shape of things to come when the control agreement is terminated. There are increasing hopes that at the forthcoming meetings it may be possible to give stockholders important indications of the attitude of the railways to the problems ahead. It is realised, however, that many of the latter will depend on Government policy and that this will naturally turn in a large measure on the result of the next general election. This week, Sir William V) Wood, President of the L.M.S.R., pointed out that most of all the railways will require stable conditions, which can be secured only by equality of treatment in relation to other forms of transport.

From the near-term point of view it would seem that the stock market has not given sufficient recognition to the confident expectations that the control agreement will run until at least 1947, which implies dividends at around current rates, so that stockholders will

probably not have to face reduction in dividends during the transition to peacetime working; whereas during this period there will doubtless be a good deal of uncertainty as to the trend in earnings and dividends of industrial concerns now mainly engaged on war work.

Home rails have been idle since last week's L.M.S.R. announcement, although maintenance of the dividend at 2½ per cent. was all that was expected in responsible quarters. Apparently some optimists had been looking for a fractional increase on the assumption that the allocation to war contingencies reserve might not be repeated. At all events, now that the L.M.S.R. has not made an increase, there is little talk of the remaining dividend announcements showing any variation from those for 1943. If there is any variation, it will come as a surprise to the market. Southern deferred has had the firmest appearance among junior stocks, and the yield is only slightly above that on Great Western ordinary, which, of course, had by far the best pre-war dividend record among home rail juniors. Now "xd," L.M.S.R. ordinary and preference stocks look very cheap at current prices; they would doubtless have attracted a good deal of buying interest had home rails been an active section of markets.

Great Western at 58½ was the same as a week ago; the guaranteed stock at 134½, and the 4 per cent. debentures at 116½, also were unchanged; the 5 per cent. preference was fractionally higher at

120½. L.M.S.R. was 29½xd, comparing with 31 a week ago, the senior preference 79xd, against 79½, and the 1923 preference 60½xd, against 62. L.N.E.R. second preference eased from 31 to 30½ pending the dividend announcement, and the first preference from 59½ to 59; the first guaranteed was slightly lower at 102½, but the second guaranteed kept at 94½. Southern deferred eased from 25½ to 25½, and the preferred from 77½ to 77½, the 5 per cent. preference remaining at 120. London Transport "C" was maintained at 69½.

Argentine rails showed a sagging tendency, due to lack of buyers. There was very little selling reported; the assumption in some quarters was that this section of markets will sooner or later receive increased attention on the hope that post-war demand for Argentine products will be on a large scale and that the railways should benefit considerably, assuming that the authorities in the Republic give them reasonably fair treatment. The fuel question is one of great difficulty, but it is, of course, reasonable to expect this will improve as time proceeds.

B.A. Great Southern eased from 11½ to 11½, the 5 per cent. preference from 26½ to 25½, and the 4 per cent. debentures lost a point at 59½. B.A. & Pacific ordinary, however, strengthened to 5½ on the latest traffic figures. Elsewhere, San Paulo receded from 60 to 58 and United of Havana 1906 debentures were 25½. Canadian Pacific were active on the further payment of 3 per cent., making a total of 5 per cent., comparing with one payment of 2 per cent. for 1943.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ended	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices			
			Total this year	Inc. or dec. compared with 1942/3		Totals		Increase or decrease		Highest 1944	Lowest 1944	February 13, 1945	Yield % (See Notes)
						1943/4	1942/3						
			£	£		£	£	£					
Antofagasta (Chili) & Bolivia	834	4.2.45	30,560	+ 2,000	5	156,750	153,230	+ 3,520	Ord. Stk.	13½	9½	10	Nil
Argentine North Eastern ...	753	3.2.45	20,233	+ 3,667	31	615,760	501,387	+ 114,373	"	6½	4½	6½	Nil
Bolivar ...	174	Jan., 1945	5,643	+ 954	4	5,643	4,689	+ 954	6 p.c. Deb.	18½	7½	7½	Nil
Brazil ...									Bonds	19½	15	18	Nil
Buenos Ayres & Pacific ...	2,773	3.2.45	162,800	+ 29,133	31	4,258,067	3,496,333	+ 761,734	Ord. Stk.	7½	3½	5½	Nil
Buenos Ayres Great Southern	5,080	3.2.45	328,867	+ 83,333	31	6,621,333	6,010,933	+ 610,400	Ord. Stk.	14½	9½	11	Nil
Buenos Ayres Western ...	1,924	3.2.45	85,733	+ 13,933	31	2,320,467	1,885,400	+ 435,067	"	13½	9½	10½	Nil
Central Argentine ...	3,700	3.2.45	199,993	+ 11,450	31	5,928,047	5,111,280	+ 816,767	"	10½	6½	8½	Nil
Do.									Divd.	4½	3	5	Nil
Cent. Uruguay of M. Video	972	3.2.45	39,382	+ 4,141	31	1,041,583	1,068,493	- 26,910	Ord. Stk.	5½	4	5	Nil
Costa Rica ...	262	Dec., 1944	10,108	- 5,700	26	121,331	130,194	- 8,863	Stk.	17½	14½	16	Nil
Dorada ...	70	Dec., 1944	29,879	+ 879	52	324,822	272,607	+ 52,215	1 Mt. Deb.	101	101	98½	£6 1/10
Entre Rios ...	808	3.2.45	27,027	+ 4,653	31	816,667	696,947	+ 119,720	Ord. Stk.	6½	4½	5	Nil
Great Western of Brazil ...	1,030	3.2.45	29,800	+ 4,300	5	141,800	120,800	+ 21,000	Ord. Sh.	38/-	23/3	30/-	Nil
International of Cl. Amer. ...	794	Dec., 1944	\$620,306	- \$76,062	52	\$7,447,799	\$7,285,649	+ \$162,150	"				
Interoceanic of Mexico									1st Pref.	1½		1	Nil
La Guaira & Caracas...	22½	Jan., 1945	5,494	- 1,146	4				5 p.c. Deb.	88	79	79½	£6 5/8
Leopoldina ...	1,918	3.2.45	47,259	- 2,357	5	229,101	217,711	+ 11,390	Ord. Stk.	5½	4½	4½	Nil
Mexican ...	483	7.2.45	ps. 555,800	+ ps. 198,000	5	ps. 3,156,600	ps. 2,061,600	+ ps. 1,095,000	Ord. Stk.	4	4	4	Nil
Midland Uruguay ...	319	Dec., 1944	15,817	- 3,197	26	99,688	103,465	- 3,777	"				
Nitrate ...	382	31.1.45	4,572	- 1,822	4	11,216	11,832	- 616	Ord. Sh.	75/10	65/10	70/-	£3 1/11
Paraguay Central ...	274	2.2.45	£52,420	+ £8,385	31	£1,842,893	£1,645,034	+ £197,859	Pr. Li. Stk.	79½	68	77	£7 1/16
Peruvian Corporation	1,059	Jan., 1945	145,653	+ 34,209	30	914,951	748,631	+ 166,320	Pref.	9	10	9½	Nil
Salvador ...	100	Dec., 1944	c 148,000	- c 26,000	26	c 558,000	c 603,000	- c 45,000	"				
San Paulo ...	153½								Ord. Stk.	57½	46	59	£3 7/10
Taitai ...	156	Jan., 1945	2,960	- 2,960	30	17,960	40,710	- 22,750	Ord. Sh.	21/3	13/9	12/6	3
United of Havana	1,301	3.2.45	60,351	- 9,169	31	1,510,386	1,516,562	- 6,176	Ord. Sh.	4	2½	3	Nil
Uruguay Northern ...	73	Dec., 1944	1,568	- 17	26	8,992	8,716	+ 276	"				
Canadian Pacific ...	17,028	7.2.45	1,103,400	+ 28,200	5	5,921,400	5,862,400	+ 59,000	Ord. Stk.	17½	13½	15½	8
Barsi Light ...	202	Dec., 1944	17,475	- 570	39	203,107	191,332	+ 11,775	Ord. Stk.	129½	97½	127½	£3 10/7
Egyptian Delta ...	607	10.1.45	20,828	+ 376	43	549,002	459,709	+ 89,293	Prf. Sh.	7½	5½	7	Nil
Manila ...									B. Deb.	63½	58	60	Nil
Midland of W. Australia	277	Dec., 1944	19,294	- 11,545	26	120,301	196,643	- 76,342	Inc. Deb.	101½	99½	98½	£4 1/3
Nigerian ...	1,900	25.11.44	374,576	+ 59,634	4				"				
South Africa ...	13,301	30.12.44	842,501	+ 75,453	39	35,789,075	32,599,873	+ 3,183,202	"				
Victoria ...	4,774	April, 1944	1,188,999	- 212,162	-				"				

Note. Yields are based on the approximate current price and are within a fraction of ½. Argentine traffic is given in sterling calculated @ 15 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee